

#5

SEQUENCE LISTING

<110> NAKASHIMA, NOBUTAKA
TAMURA, TOMOHIRO

<120> NOVEL EXPRESSION VECTOR SUITABLE FOR EXPRESSION OF RECOMBINANT
PROTEIN AT LOW TEMPERATURE

<130> 081356-0232

<140> 10/524,193
<141> 2005-02-11

<150> PCT/JP03/10209
<151> 2003-08-11

<150> JP 2002/235008
<151> 2002-08-12

<160> 131

<170> PatentIn Ver. 3.3

<210> 1
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
shn1

<400> 1
cagagctcgt caggtggcac ttttc 25

<210> 2
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
shn2

<400> 2
gttgtaaac tagtcgtgcc agctgcatta 30

<210> 3
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
shn120

<400> 3
gctgtacacc cgagaagctc ccagcg

26

<210> 4
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN121

<400> 4
cggagctctt gaacgagagt tggcggttg

29

<210> 5
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN122

<400> 5
tcagatctat cgatcatcgac tgcgatcacg ttgacgccg

39

<210> 6
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN123

<400> 6
acggatcctc cgctgaaatc tcgccgtgcc t

31

<210> 7
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN130

<400> 7
cttcatatgc ggagctcgac cgcgcggg

28

<210> 8
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN131

<400> 8
 atcgagtcgt tcaagggcgt cggc 24
 <210> 9
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 NEB1233

<400> 9
 agcggataac aatttcacac agg 23
 <210> 10
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN10

<400> 10
 caccagatg atccccgac 19
 <210> 11
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN11

<400> 11
 gacagtgaca tcaccagc 18
 <210> 12
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 NEB1224

<400> 12
 cgccagggtt ttccagtcg cgac 24
 <210> 13
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN40

<400> 13

atgagctact ccgtgggaca ggtg

24

<210> 14

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN41

<400> 14

tgcagatcct ccgtttcgac gtgacggag

29

<210> 15

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN42

<400> 15

cagtctagaa ttgatctcct cgaccg

26

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN43

<400> 16

tgcaagctcc tatgtaaaacg

20

<210> 17

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN55

<400> 17

cgctgtctcc acggccgcc

19

<210> 18
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN56

<400> 18
 atggaggcac gcagcatg 18

<210> 19
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN57

<400> 19
 cgccccctcg gagtcggcg 19

<210> 20
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN58

<400> 20
 atggacgccg ccgaggac 18

<210> 21
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN147

<400> 21
 cgtgtacata tcgaggcggg ctccca 26

<210> 22
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN39

<400> 22
 atccatggcc gctcccttct ctgacgcggt c 31

<210> 23
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN36

<400> 23
 accatggatc aggaatgcat ag

22

<210> 24
 <211> 59
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN37

<400> 24
 ttactagttt attaatgatg atgatgatga tgcaggtgtt tcaggatgaa atccgaaag 59

<210> 25
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN6

<400> 25
 cgtctagagt cccgctgagg cggcgtagc

29

<210> 26
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN9

<400> 26
 ctactagtcg acccaccggc acccgtgag

29

<210> 27
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN141

<400> 27
 aatctagagt aacgggctac tccgtttaac 30

 <210> 28
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN142

 <400> 28
 gggtcgacgg tcctcctgtg gagtgggtct 30

 <210> 29
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN145

 <400> 29
 gcactcgaga tgaaatctaa caatgcgctc atc 33

 <210> 30
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN152

 <400> 30
 agactagtcc tcaacgacag gagcacgac 30

 <210> 31
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 T7

 <400> 31
 gtaatacgac tcactatagg gc 22

 <210> 32
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN153

<400> 32

aatccacagg acgggtgtgg

20

<210> 33

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN154

<400> 33

ctctacgccg gacgcatcg

19

<210> 34

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
T3

<400> 34

gcaattaacc ctactaaaag gg

22

<210> 35

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN155

<400> 35

acgacgtct cccttatgcg

20

<210> 36

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN156

<400> 36

ccgatgccct tgagagcct

19

<210> 37
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN110

<400> 37
 aaccatggta tatctccttc ttaaagttaa acaaaattat ttctagacgc cgtccacgct 60
 gcctcct 67

<210> 38
 <211> 77
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 NNco1

<400> 38
 catgggccac catcaccatc accatatggg aattctacgt agcggccgcg gatccaagct 60
 tagatctcga ggtgaa 77

<210> 39
 <211> 77
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 NNco2

<400> 39
 ctagttcatc ctcgagatct aagcttggat ccgcgccgcg tacgtagaat tcccatatgg 60
 tgatggtgat ggtggcc 77

<210> 40
 <211> 71
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 CNco1

<400> 40
 catgggaatt ctacgtagcg gccgcggatc caagcttaga tctcgaggac atcaccatca 60
 ccatcactga a 71

<210> 41
 <211> 71
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
CNco2

<400> 41

ctagttcagt gatggtgatg gtgatgtcct cgagatctaa gcttggatcc gcggccgcta 60
cgtagaattc c 71

<210> 42

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN159

<400> 42

tccatatgcg ctcccttctc tgacgccgt 29

<210> 43

<211> 80

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
NNde1

<400> 43

tatgggccat caccatcac c atcacgccat gggaattcta cgtagcggcc gcggatccaa 60
gcttagatct cgaggatgaa 80

<210> 44

<211> 82

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
NNde2

<400> 44

ctagttcatc ctcgagatct aagcttggat ccgcggccgc tacgtagaat tcccatggcg 60
tgatggtgat ggtgatggcc ca 82

<210> 45

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
CNdel

<400> 45

tatgggaatt ctacgtagcg gccgcggatc caagcttaga tctcgaggac atcaccatca 60
ccatcactga a 71

<210> 46
 <211> 73
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
 CNde2

<400> 46
 ctagttcagt gatggtgatg gtgatgtcct cgagatctaa gcttggatcc gcggccgcta 60
 cgtagaattc cca 73

<210> 47
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
 sHN160

<400> 47
 aacatatgta tatctccttc ttaaagtta ac 32

<210> 48
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
 sHN97

<400> 48
 ataccatgga acctcatgaa gc 22

<210> 49
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
 sHN98

<400> 49
 aactcgagat cccataagtg ctttcatctt 30

<210> 50
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
 sHN82

<400> 50
tactcatgat gcatcaccat caccatc

27

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
pTrc99A Cseq

<400> 51
cagaccgctt ctgcgttctg

20

<210> 52
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN272

<400> 52
atccatggcc cctatactag gttattg

27

<210> 53
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN271

<400> 53
aactcgagtc aatccgattt tggaggatgg tcg

33

<210> 54
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN150

<400> 54
catggaatt cagatctctc gaga

24

<210> 55
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN212

<400> 55

agcttctcga gagatctgaa ttcc

24

<210> 56

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
pBAD(Forward)

<400> 56

ctatgccata gcatttttat cc

22

<210> 57

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN166

<400> 57

gccatatggg gtttttttca tttgttcacg

30

<210> 58

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN167

<400> 58

aactcgagtc agtatttgtc aggcagtc

29

<210> 59

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN168

<400> 59

gcctcgagg gtttttttca tttgttcacg

30

<210> 60
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN169

<400> 60
 gaggtacctc agtatttgtc aggcagtcc

29

<210> 61
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN170

<400> 61
 cacatatgct ccgccagatc ctcgg

25

<210> 62
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN171

<400> 62
 ttgaattctt agaagtctgg gccttcttcc

30

<210> 63
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN172

<400> 63
 ccctcgagat gctccgccag atcctcgg

28

<210> 64
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN177

<400> 64
 cccatatggc cgggcagtca gacaag

26

<210> 65
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN178

<400> 65
 gagaattctc aatcttctgc catgtagagg

30

<210> 66
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN179

<400> 66
 aactcgagat ggccgggcag tcagacaag

29

<210> 67
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN290

<400> 67
 aacatatgaa caagagctct gaagatatcc

30

<210> 68
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN262

<400> 68
 atgaattcat ggcaaccatc taactg

26

<210> 69
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN261

<400> 69
ttctcgagaa caagagctct gaagatatcc g 31

<210> 70
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN295

<400> 70
aacatatggc tgtccctgac aaaacggtc 29

<210> 71
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN266

<400> 71
ctaagctttt aatgtttgtg gaaagtgc 28

<210> 72
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN265

<400> 72
gtctcgaggt ccctgacaaa acggtcaaat g 31

<210> 73
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN288

<400> 73
ttccatggca cggaagagcc tctggg 26

<210> 74
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN268

<400> 74

ttgaattcca gacaatgagc tggaggg

27

<210> 75

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN267

<400> 75

aactcgagcg gaagagcctc tgggactac

29

<210> 76

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN243

<400> 76

ctccatgggg attatcagaa tccctctgcg c

31

<210> 77

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN244

<400> 77

agctcgagag agtacgacag cattggcaaa gcc

33

<210> 78

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN245

<400> 78

aaccatgggc accaccgatg cggagttcca cacc

34

<210> 79
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN246

<400> 79
 aactcgagat ccaaattgat caatgacttt ctgtatccac 40

<210> 80
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN247

<400> 80
 aaccatggga attggtggag gatttaactg tgag 34

<210> 81
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN248

<400> 81
 aactcgagag tcattttcag ccatagtttc tcttatcc 38

<210> 82
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN275

<400> 82
 aacatatgct gaggtctctgc tccttcaatg tgagg 35

<210> 83
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 SHN307

<400> 83
 ttctcgagcg tgatacctag gagcg 25

 <210> 84
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN277

 <400> 84
 ggccatgggg acaccagaaa tctcatgc 28

 <210> 85
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN278

 <400> 85
 aagaattcac cgagtttact tacagaaccc 30

 <210> 86
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN279R

 <400> 86
 aaccatgggc aaaggagatc ctaagaag 28

 <210> 87
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN280

 <400> 87
 ttgaattcct gcgctagaac caacttattc atc 33

 <210> 88
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN314

<400> 88
 aactcgaggg caaaggagat cctaagaag

29

<210> 89
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN283

<400> 89
 gaccatggct cctgagcaat gggaag

26

<210> 90
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN284

<400> 90
 ataagctttt aagggtcctc atccacgtga a

31

<210> 91
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN164

<400> 91
 aacatatgga cgggtccggg gagcag

26

<210> 92
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic primer
 sHN194

<400> 92
 aagaattctc agcccatctt cttccagatg

30

<210> 93
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN193

<400> 93
aactcgagat ggacgggtcc ggggagca

28

<210> 94
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN305

<400> 94
ctcatatggc tgtggatact acaagg

26

<210> 95
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN306

<400> 95
atctcgagga ttctactggc ccagcatgc

29

<210> 96
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN296

<400> 96
aactcgagcg tcggtatcct tttgcgctg

30

<210> 97
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN330

<400> 97
accctatgggc gacggtgctg gaaattg

27

<210> 98
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN259

<400> 98
aactcgagat gaagcttgta aatggcagaa ag

32

<210> 99
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN260

<400> 99
aagaattcct ctactgtgta tcggtcat

28

<210> 100
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN269

<400> 100
aactcgagct gcaaggcttg gagagtgatg

30

<210> 101
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic primer
sHN270

<400> 101
gaggtacctt tcagtttagc ttgtcgaaat ac

32

<210> 102
<211> 31
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN263

<400> 102

gcctcgagct tcctgagaag accatacgat g

31

<210> 103

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN264

<400> 103

ctgaattctg tttaatatatt atgaaatgtg

30

<210> 104

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
sHN343

<400> 104

aaactagttc agtgatggtg atggtgatgc tcgagagatc t

41

<210> 105

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer
T7 Universal

<400> 105

taatacgact cactataggg

20

<210> 106

<211> 8166

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip NH1

<400> 106

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
 cttcccccttg cgttggtgat tgccggtcag ggcagccatc cgccatcgtc gcgtaggggtg 120
 tcacacccca ggaatcgct cactgaacac agcagccggt aggacgacca tgactgagtt 180
 ggacaccatc gcaaatccgt ccgatcccg cgtgcagcgg atcatcgatg tcaccaagcc 240

gtcacgatcc	aacataaaga	caacgttgat	cgaggacgtc	gagccctca	tgcacagcat	300
cgcgccggg	gtggagtcca	tcgaggtcta	cggcagcgac	agcagtcctt	ttccatctga	360
gttgctggat	ctgtgcgggc	ggcagaacat	accggtccgc	ctcatcgact	cctcgatcgt	420
caaccagttg	ttcaaggggg	agcggaaggc	caagacattc	ggcatcgccc	gcgtccctcg	480
cccggccagg	ttcggcgata	tccgcagccg	gcgtggggac	gtcgtcgttc	tgcacggggg	540
gaagatcgtc	gggaacatcg	gcgcgatagt	acgcacgtcg	ctcgcgctcg	gagcgtcggg	600
gatcatcctg	gtggacagtg	acatcaccag	catcgcgga	cggcgtctcc	aaagggccag	660
ccgaggttac	gtcttctccc	ttcccgctcg	tctctccggt	cgcgaggagg	ccatcgctt	720
cattcgggac	agcggtatgc	agctgatgac	gctcaaggcg	gatggcgaca	tttccgtgaa	780
ggaactcggg	gacaatccgg	atcggtggc	cttgctgttc	ggcagcgaaa	aggggtgggc	840
ttccgacctg	ttcgaggagg	cgtcttccgc	ctcggtttcc	atccccatga	tgagccagac	900
cgagtctctc	aacgtttccg	tttccctcgg	aatcgcgctg	cacgagagga	tgcacaggaa	960
tctcggggcc	aaccgataag	cgctctgtt	cctcggacgc	tcggttcttc	gacctcgatt	1020
cgtcagtgat	gatcacctca	cacggcagcg	atcaccactg	acatatcgag	gtcaacggtc	1080
gtggtcggg	cgggcactcc	tccaaggcgc	ggcgcagcgc	cttgaacgac	tccgatgactc	1140
tagagtaacg	ggctactccg	tttaacggac	cccgcttctca	cgcttttaggc	ttgaccccg	1200
agcctgcatg	gggcattccg	cgtgaaccc	ggtggaatgc	ccccggcacc	cgggctttcc	1260
agcaaagatc	acctggcgcc	gatgagtaag	gcgtacagaa	ccactccaca	ggaggaccgt	1320
cgagatgaaa	tctaacaatg	cgtcatcgt	catcctcggc	accgtcaccc	tggatgctgt	1380
aggcataggc	ttggttatgc	cggtaactgc	gggcctcttg	cgggatatcg	tccattccga	1440
cagcatcgcc	ttccttgccg	gcgtgctgct	agcgctatat	gcgttgatgc	aatttctatg	1500
cgcaccctgt	ctcggagcac	tgctcgaccg	ctttggccgc	cgcccgagtc	tgctcgcttc	1560
gctacttgga	gccactatcg	actacgcgat	catggcgacc	acaccgctcc	tgtggattct	1620
ctacgccgga	cgcatcgtgg	ccggcatcac	cggcgccaca	ggtgcgggtg	ctggcgccct	1680
tatcgccgac	atcacccgatg	gggaagatcg	ggctcgccac	ttcgggctca	tgagcgcttg	1740
tttcggcggt	ggtatggtgg	caggccccgt	ggccggggga	ctgttgggcg	ccatctcctt	1800
gcatagcacca	ttccttgccg	cggcggtgct	caacggcctc	aacctactac	tgggctgctt	1860
cctaattgcag	gagtcgcata	agggagagcg	tcgtccgatg	cccttgagag	ccttcaaccc	1920
agtcagctcc	ttccggtggg	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacaggtgcc	ggcagcgctc	tgggtcattt	tccggcgagga	2040
ccgctttcgc	tggagcgcg	cgatgatcgg	cctgtcgctt	gcggtattcg	gaatcttgca	2100
cgccctcgct	caagccttcg	tactgggtcc	cgccacaaa	cgtttcgcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	cgcacgcgct	gggtacgtc	ttgctggcgt	tccgcagcgc	2220
aggctggatg	cgcttcccc	ttatgattct	tctcgcttcc	ggcgccatcg	ggatgcccgc	2280
gttgaggcc	atgctgtcca	ggcaggtaga	tgacgacct	cagggacagc	ttcaaggatc	2340
gctcggcgct	cttaccagcc	taacttcgat	cattggaccg	ctgatcgtca	cggcgattta	2400
tgccgcctcg	gcgagcacat	ggaaacgggt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgcctc	cccgcgttgc	gtcggggtgc	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcgcc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggaaactg	tgaatgcgca	aaccaacctt	tggcagaaca	tatccatcgc	gtccgccatc	2640
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcgatg	2700
atcgtgctcc	tgctgttgag	gactagaatt	gatctcctcg	accgccaatt	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgtga	2820
atcacacccc	accggggggg	gggattgcag	tcaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagctt	gcaatgagct	actccgtggg	acaggtggcc	ggcttcgccg	2940
gagtgcgggt	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggccaccgg	cgtacagcgc	acgccgacct	cgaccggctg	cagcagatcc	3060
tggtctaccg	ggagctgggc	ttcccgctcg	acgaggtcgc	cgccctgctc	gacgacccgg	3120
ccgcggaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcgggg	3180
aactgcagaa	gatggcgggc	gccgtggagc	aggcgatgga	ggcagcgagc	atgggaatca	3240
acctcacccc	ggaggagaag	ttcgaggtct	tcggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	gggaacaccc	agccctaccg	ccagtcgaag	ggccgacgag	ctcacccggc	3360
cctcgtacac	caaggaggac	tggcagcgca	tccaggacga	cgagggggcg	atggagcccg	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	ctgcgggtac	gagatgcaca	3480
ccgaggacca	ccggcagggc	atcgcccgca	accactacga	gcgaacatc	gacgcccgca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	caacgcctgc	cggcacaccc	3600
agccgggctc	cgccgcctac	atgcgcgacg	cgatcctcgc	acccacggc	tactccccgg	3660
cctgagcggt	ggtcgtggcc	cgggtctccc	gcccgggtctc			3720

gccacgacca	ccgccgtccc	gtacgcgcac	acctcgggtgc	ccacgtccgc	cgccctccgtc	3780
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgcgcggaac	ccctatttgt	ttatttttct	aaatacattc	aaatatgtat	ccgctcatga	3900
gacaataacc	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgcccttatt	cccttttttg	cggcattttg	ccttcctggt	tttgcctacc	4020
cagaaacgct	ggtgaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cacttttaaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccg	4200
ggcaagagca	actcggtcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgcctgcca	4320
taaccatgag	tgataacact	gcgcccaact	tacttctgac	aacgatcgga	ggaccgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaattg	4500
caacaacggt	gcgcaaaact	ttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaagttg	caggaccact	tctgcgctcg	gcccttccgg	4620
ctggctgggt	tattgtctgat	aaatctggag	cgggtgagcg	tgggtctcgc	ggatcatttg	4680
cagcactggg	gccagatggt	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740
aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	aggtgcctca	ctgattaagc	4800
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cgggtggtttg	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgctaata	cctgttacca	gtgggtgctg	5220
ccagtggcga	taagtctgtg	cttaccgggt	tggactcaag	acgataagta	ccggataagg	5280
cgcagcgggt	gggtctgaacg	gggggttcgt	gcacacagcc	cagcttgagg	cgaacgacct	5340
acaccgaact	gagataccta	cagcgtgagc	tatgagaaag	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggtatccg	gtaagcggca	gggtcggaac	aggagagcgc	acgagggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acggttccctg	gccttttgtct	ggccttttgc	tcacatgttc	tttctcgctg	5640
tatccccctg	ttctgtggat	aacogtatta	cgccttttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcgagttag	tgagcgagga	agcgggaagag	cgcccaatac	5760
gcaaaccgcc	tctccccgcg	cggtggccga	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggg	ggcgtagcag	gtcagccgcc	ccagcgggtg	tcaccaaccg	gggtggaacg	5880
gcgcgggtat	cgggtgtgtc	cgtggcgctc	attccaacct	ccgtgtgttt	gtgcaggttt	5940
cgcgtgttgc	agtccctcgc	accggcaccc	gcagcgaggg	gctcacgggt	gccgggtggg	6000
cgactagttc	atcctcgaga	tctaagcttg	gatccgcggc	cgctacgtag	aattcccata	6060
tgggtgatgg	gatgtggccc	catggcgctc	cccttctctg	acgccgtcca	cgctgcctcc	6120
tcacgtgacg	tgaggtgcaa	gcccggacgt	tccgcgtgcc	acgccgtgag	ccgccgcgtg	6180
ccgtcggttc	cctcagcccg	ggcgcccggtg	ggagcccgc	tcgatatgta	caccggagaa	6240
gctcccagcg	tcctcctggg	ccgcgatact	cgaccaccac	gcacgcacac	cgactaacg	6300
attcggccgg	cgctcgattc	ggccggcgct	cgattcggcc	ggcgctcgat	tcggccggcg	6360
ctcgattcgg	cggcgctcgc	attcggccga	gcagaagagt	gaacaaccac	cgaccacgct	6420
tccgctctgc	gcgcggtacc	cgacctacct	cccgcagctc	gaagcagctc	ccgggagtag	6480
cgccgtactc	acccgcctgt	gctcaccatc	caccgacgca	aagcccaacc	cgagcacacc	6540
tcttgacca	aggtgccgac	cgtggctttc	cgctcgcagg	gttccagaag	aaatcgaaacg	6600
atccagcgcg	gcaagggtca	aaaagcaggg	gttgggtggg	aggaggtttt	gggggggtgtc	6660
gccgggatac	ctgatattgg	tttgttttgc	gtagtccaat	aattttccat	atagcctcgg	6720
cgcgtcgagc	tcgaatagtt	gatgtggggc	ggcacagttg	ccccatgaaa	tccgcaacgg	6780
ggggcggtgt	gagcgatcgg	caatggggcg	atgcggtgtt	gcttccgcac	cgggcggttcg	6840
cgacgaacaa	cctccaacga	ggtcagtacc	ggatgagccg	cgacgacgca	ttggcaatgc	6900
ggtacgtcga	gcattcaccg	cacgcgttgc	tcggatctat	cgctcatcgac	tgcgatcacg	6960
ttgacgcggc	gatgcgcgca	ttcgagcaac	catccgacca	tcgggcggcg	aactgggtcg	7020
cacaatcgcc	gtccggccgc	gcacacatcg	gatgggtggc	cggccccaac	cacgtgtgcc	7080
gcaccgacag	cgcccgactg	acggcactgc	gctacgcccc	ccgcatcgaa	accggcctca	7140
agatcagcgt	cggcgcgcat	ttcgcgtagt	gcggggcaact	gacaaaaaac	ccgattcacc	7200

```

ccgattggga gacgatctac ggcccggcca ccccgtagac attgcggcag ctggccacca 7260
tccacacacc ccggcagatg ccgcgtcggc ccgatcgggc cgtgggcctg ggccgcaacg 7320
tcaccatgtt cgacgccacc cggcgatggg catacccgca gtggtggcaa caccgaaacg 7380
gaaccggccg cgactgggac catctcgcc tgcagcactg ccacgccgtc aacaccgagt 7440
tcacgacacc actgccgttc accgaagtac gcgccaccgc gcaatccatc tccaaatgga 7500
tctggcgcaa ttccaccgaa gaacagtacc gagcccagaca agcgcatctc ggtcaaaaag 7560
gcggaaggc aacgacactc gccaaacaag aagccgtccg aaacaatgca agaaagtacg 7620
acgaacatac gatgcgagag gcgattatct gatgggcgga gccaaaaatc cggtgccgccg 7680
aaagatgacg gcagcagcag cagccgaaaa attcgggtgc tccactcgca caatccaacg 7740
cttgtttgct gagccgcgtg acgattacct cggccgtgcg aaagctcgcc gtgacaaagc 7800
tgtcgagctg cggaagcagg ggttgaagta cgggaaatc gccgaagcga tggaaactctc 7860
gaccgggatc gtcggccgat tactgcacga cggccgcagg caccgagaga ttccagcgga 7920
ggatctgtcg gcgtaacca gtcagcgggt tgtcgggttc cggccggcgc tcggcactcg 7980
gaccggccgg cggatgggtg tctgcctctg gcgcagcgtc agctaccgcc gaaggcctgt 8040
catcgaccgg cttcgactga agtatgagca acgtcacagc ctgtgattgg atgatccgt 8100
cacgctcgac cgctacctgt tcagctgccg cccgctgggc atgagcaacg gccaaactctc 8160
gttcaa

```

<210> 107

<211> 8169

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip NH2

<400> 107

```

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttccccctg cgttggtgat tgccgggtcag ggcagccatc cgccatcgtc gcgtagggtg 120
tcacacccca ggaatcgct cactgaacac agcagccggt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgt ccgatcccg cgtgacgagg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagcccctca tgcacagcat 300
cgcgcccggg gtggagttca tcgaggtcta cggcagcgac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaggc caagacattc ggcatcgccc gcgtccctcg 480
cccggccagg ttccggcgata tcgcgagccg gcgtggggac gtcgtcgttc tcgacggggg 540
gaagatcgtc ggggaacatc gcgcgatagt acgcacgtcg ctccgctcg gagcgtcggg 600
gatcatcctg gtggacagtg acatcaccag catcgcgagc cggcgtctcc aaagggccag 660
ccgaggttac gtcttctccc ttcccgctcg tctctccggt cgcgaggagg ccatcgctt 720
cattcgggac agcgggtatg agctgatgac gctcaaggcg gatggcgaca ttcccgtaga 780
ggaactcggg gacaatccgg atcggtggc cttgctgttc ggcagcgaaa aggggtgggc 840
ttccgacctg ttccgaggagg cgtcttccgc ctccggttcc atcccatga tgagccagac 900
cgagtctctc aacgtttccg ttccctccg aatcgcgctg cagcagagga tcgacaggaa 960
tctcgcgccc aaccgataag cgctctgtt cctcggacgc tcggttcttc gacctcgatt 1020
cgtcagtgat gatcacctca caccgacgc atcaccactg acatatcgag gtcaacggtc 1080
gtggtccggg cgggcactcc tcgaaggcgc ggcgacgccc cttgaacgac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac ccggttctca cgctttaggc ttgaccccg 1200
agcctgcatg gggcattccg ccgtgaaccc ggtggaatgc ccccggcacc cgggctttcc 1260
agcaagatc acctggcgcc gatgagtaag gcgtacagaa ccaactccaca ggaggaccgt 1320
cgagatgaaa tctaacaatg cgctcatcgt catcctcggc accgtcaccc tggatgctgt 1380
aggcataggc ttggttatgc cggtagtgc gggcctcttg cgggatatcg tccattccga 1440
cagcatcgcc agtcactatg gcgtgctgct agcgtatat gcgttgatg aatttctatg 1500
cgacccggtt ctccggagcac tgtccgaccg ctttggccgc cggccagtc tgctcgcttc 1560
gctacttgga gccactatcg actacgcgat catggcgacc acaccgctcc tgtggattct 1620
ctacgccgga cgcacgtgg ccggcatcac cggcgccaca ggtgcggttg ctggcgcta 1680
tatcgccgac ataccgatg ggaagatcg ggctcgccac ttcgggctca tgagcgcttg 1740

```

tttcggcgctg	ggtatggtgg	caggccccgt	ggcgggggga	ctgttgggcg	ccatctcctt	1800
gcatgcacca	ttccttgcg	cggcggtgct	caacggcctc	aacctactac	tggtgtgctt	1860
cctaatagcag	gagtcgcata	aggagagagc	togtccgatg	cccttgagag	ccttcaaccc	1920
agtcagctcc	ttccggtggg	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacaggtgcc	ggcagcgctc	tgggtcattt	tcggcgagga	2040
ccgctttcgc	tggagcgcca	cgatgatcgg	cctgtcgctt	gcggtattcg	gaatcttgca	2100
cgccttcgct	caagccttcg	tcactggtcc	cggcaccaaa	cgtttcggcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	ccgacgcgct	gggctacgtc	ttgctggcgt	tcgcgacgcg	2220
aggctggatg	gccttcccca	ttatgattct	tctcgcttcc	ggcggcacgc	ggatgcccgc	2280
gttgcaggcc	atgctgtcca	ggcaggtaga	tgacgaccat	cagggacagc	ttcaaggatc	2340
gctcgcggct	cttaccagcc	taacttcgat	cattggaccg	ctgatcgta	cggcgattta	2400
tgccgcctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgcctc	cccgcgttgc	gtcgcggtgc	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcggg	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2640
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcagc	2700
atcgctgctc	tgtcgttgag	gactagaatt	gatctcctcg	accgccaatt	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgtga	2820
atcacacccc	accggggggg	gggattgcag	tcaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagctt	gcaatgagct	actcgtggg	acaggtggcc	ggcttcgccc	2940
gagtgacggt	gcgacgcgtg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggccacccg	cgtacagcgc	acgccgacct	cgaccggctg	cagcagatcc	3060
tgttctaccg	ggagctgggc	ttcccgtcgc	acgaggtcgc	cgccttgctc	gacgacccgg	3120
ccgcggaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcggga	3180
aactgcagaa	gatggcgggc	gccgtggagc	aggcgatgga	ggcacgcagc	atgggaatca	3240
acctcacccc	ggaggagaag	ttcgaggtct	tcggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	ggaacgctgg	gggaacaccg	cgccttaccg	ccagtccaag	gagaagaccg	3360
cctcgtaacg	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcacccggc	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacgccc	3480
ccgaggacca	ccggcagggc	atcgcccgcg	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccgcca	3600
agccgggcct	cgcgccttac	atgcgcgacg	cgatcctcgc	caacgcctgc	cggcacaccc	3660
cctgagcggg	ggtcgtggcc	cgggtctccc	gcccggcttc	accccacggc	tcactcccgg	3720
gccacgacca	ccgcgctccc	gtacgcgcac	acctcgggtg	ccacgtccgc	cgcctccgtc	3780
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgccgcggaac	ccctatttgt	ttatttttct	aaatacattc	aaatatgtat	ccgctcatga	3900
gacaataacc	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgcctttatt	cccttttttg	cggcattttg	ccttctctgt	tttgctcacc	4020
cagaaacgct	ggtgaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccc	4200
ggcaagagca	actcgtgcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgtgccca	4320
taaccatgag	tgataaacat	gcggccaact	tacttctgac	aacgatcgga	ggaccgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacggt	gcgcaaaact	ttaaactggc	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaagttg	caggaccact	tctgcgctcg	gcccttccgg	4620
ctggctgggt	tattgctgat	aaatctggag	cgggtgagcg	tgggtctcgc	ggtatcattg	4680
cagcactggg	gccagatggg	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740
agggaactat	ggatgaacga	aatagacaga	tcgctgagat	aggtgcctca	ctgattaagc	4800
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cgggtggttt	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagttagtag	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgctaatt	cctgttacca	gtggctgctg	5220

```

ccagtggcga taagtcgtgt cttaccgggt tggactcaag acgatatgta cgggataagg 5280
cgcagcgggtc gggctgaacg ggggggttcgt gcacacagcc cagcttggag cgaacgacct 5340
acaccgaact gagataccta cagcgtgagc tatgagaaag cgccacgctt cccgaaggga 5400
gaaaggcgga caggtatccg gtaagcggca gggctcggaac aggagagcgc acgagggagc 5460
ttccaggggg aaacgcctgg tatctttata gtcctgtcgg gtttcgccac ctctgacttg 5520
agcgtcgatt tttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg 5580
cggccttttt acggttcctg gccttttgct ggctttttgc tcacatgttc tttcctgctg 5640
tatccccctga ttctgtggat aaccgtatta ccgcctttga gtgagctgat accgctcgcc 5700
gcagccgaac gaccgagcgc agcagtcagc tgagcggagga agcggagagc cgcccaatac 5760
gcaaaccgcc tctccccgcg cgttggccga ttcattaatg cagctggcac gactagagtc 5820
ccgctgaggc ggcgtagcag gtcagccgcc ccagcgggtg tcaccaaccg gggtggaacg 5880
gcgcgggtat cgggtgtgtc cgtggcgctc attccaacct ccgtgtgttt gtgcaggttt 5940
cgcggtgttg agtcctcgc accggcaccc gctcagggg gctcacgggt gccgtgggt 6000
cgactagttc atcctcgaga tctaagcttg gatccgcggc cgctacgtag aattcccatg 6060
gcgtgatggg gatggatgat gcccatatgc gtcctcttct ctgacgccgt ccacgctgcc 6120
tcctcacgtg acgtgaggtg caagcccggg cgttcgcgct gccacgccgt gagccgccgc 6180
gtgccgtcgg ctccctcagc ccgggcggcc gtgggagccc gcctcgatat gtacacccga 6240
gaagtcctcc gcgtcctcct gggccgcgat actcgaccac cagcacgca caccgcacta 6300
acgattcggc ggcgcctcga ttcggccggc gctcgattcg gccggcgctc gattcgccg 6360
gcgctcgatt cggccggcgc tcgattcggc cgagcagaag agtgaacaac caccgaccac 6420
gcttcgcgtc tgcgcgccgt acccgacct aatcccgag ctccaagcag ctcccgggag 6480
taccgccgta ctacccgcc tgtgctcacc atccaccgac gcaaagccca acccgagcac 6540
acctcttgca ccaagtgcc gaccgtggct ttcgcgtcgc aggggtccag aagaaatcga 6600
acgatccagc gcggcaaggt tcaaaaagca ggggttggtg gggaggaggt tttggggggt 6660
gtcgccggga tacctgatat ggctttgttt tgcgtagtcg aataattttc catatagcct 6720
cggcgcgtcg gactcgaata gttgatgtgg gtcgggcacag ttgccccatg aaatccgcaa 6780
cgggggggcgt gctgagcgat cggcaatggg cggatgcggg gttgcttccg caccggccgt 6840
tcgcgacgaa caacctcaa cgaggtcagt accggatgag ccgcgacgac gcattggcaa 6900
tgccgtacgt cgagcattca ccgcacgcgt tgctcggatc tatcgtcatc gactgcatc 6960
acgttgacgc cgcgatgcgc gcattcgagc aacctccga ccacccggcg ccgaactggg 7020
tcgcacaatc gccgtccggc cgcgcacaca tcggatggg gctcggcccc aaccagtggt 7080
gccgcaccga cagcgcccga ctgacgccac tgcgctacgc ccaccgcatc gaaaccggcc 7140
tcaagatcag cgtcggcggc gatttcgcgt atggcgggca actgaccaa aacccgattc 7200
accccgattg ggagacgatc tacggcccgg ccaccccgta cacattgcgg cagctggcca 7260
ccatccacac accccggcag atgcgcgctc gggccgatcg ggccgtgggc ctggggccgca 7320
acgtcaccat gttcgacgcc acccggcgat gggcataccc gcagtgggtg caacaccgaa 7380
acggaaccgg ccgcgactgg gacctctcg tccgtcagca ctgccacgcc gtcaacaccg 7440
agttcacgac accactgccc ttaccgaag tacgcgccac cgcgcaatcc atctccaaat 7500
ggatctggcg caatttcacc gaagaacagt accgagccc acaagcgcac ctcggtcaaa 7560
aaggcggcaa ggcaacgaca ctgcgcaaac aagaagccgt ccgaaacaat gcaagaaagt 7620
acgacgaaca tacgatgcga gaggcgatta tctgatggg ggagccaaaa atccgggtgcg 7680
ccgaaagatg acggcagcag cagcagccga aaaattcggg gcctccactc gcacaatcca 7740
acgcttgttt gctgagccgc gtgacgatta cctcggccgt gcgaaagctc gccgtgacaa 7800
agctgtcgag ctgcgggaag aggggttgaa gtaccgggaa atcgccgaag cgatggaaact 7860
ctcgaccggg atcgtcggcc gattactgca cgacgccgc aggcacggcg agatttcagc 7920
ggaggatctg tcggcgtaac caagtcagcg ggttgctcggg ttccggccgg cgctcggcac 7980
tcggaccggc cggcggatgg tgttctgcct ctggcgagc gtccagctacc gccgaaggcc 8040
tgtcatcgac cggcttcgac tgaagtatga gcaacgtcac agcctgtgat tggatgatcc 8100
gctcacgctc gaccgctacc tgttcagctg ccgcccgctg ggcagagca acggccaact 8160
ctcgttcaa

```

<210> 108

<211> 8160

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip CH1

<400> 108

gagctcgacc	gcgcgggtcc	cggacgggga	agagcgggga	gctttgccag	agagcgacga	60
cttcccccttg	cgttgggtgat	tgccggtcag	ggcagccatc	cgccatcgtc	gcgtaggggtg	120
tcacaccccca	ggaatcgcg	cactgaacac	agcagccggt	aggacgacca	tgactgagtt	180
ggacaccatc	gcaaatccgt	ccgatcccg	ggtgcagcgg	atcatcgatg	tcaccaagcc	240
gtcacgatcc	aacataaaga	caacgttgat	cgaggacgtc	gagcccctca	tgacacagcat	300
cgcggccggg	gtggagtca	tcgaggtcta	cggcagcgac	agcagtcctt	ttccatctga	360
gttgctggat	ctgtgcgggc	ggcagaacat	accgggtccgc	ctcatcgact	cctcgatcgt	420
caaccagttg	ttcaaggggg	agcgggaaggc	caagacattc	ggcatcgccc	gcgtccctcg	480
cccggccagg	ttcggcgata	tcgcgagccg	gcgtggggac	gtcgtcgctc	tcgacggggt	540
gaagatcgtc	gggaacatcg	gcgcgatagt	acgcacgtcg	ctcgcgctcg	gagcgtcggt	600
gatcatcctg	gtggacagtg	acatcaccag	catcgcgagc	cggcgtctcc	aaagggccag	660
ccgaggttac	gtcttctccc	ttcccgtcgt	tctctccggt	cgcgaggagg	ccatcgccct	720
cattcggggac	agcggtatgc	agctgatgac	gctcaaggcg	gatggcgaca	tttccgtgaa	780
ggaactcggg	gacaatccgg	atcggctggc	cttgcgtgtc	ggcagcgaaa	agggctgggc	840
ttccgacctg	ttcgaaggag	cgtcttcgcg	ctcggtttcc	atccccatga	tgagccagac	900
cgagtctctc	aacgtttccg	tttccctcgg	aatcgcgctg	cacgagagga	tcgacaggaa	960
tctcgcggcc	aaccgataag	cgctctgtgt	cctcggacgc	tcggttcctc	gacctcgatt	1020
cgtcagtgat	gatcacctca	cacggcagcg	atcaccactg	acatatcgag	gtcaacgggtc	1080
gtgggtccggg	cgggcactcc	tcgaaggcgc	ggccgacgcc	cttgaacgac	tcgatgactc	1140
tagagtaacg	ggctactccg	tttaacggac	cccgttctca	cgctttaggc	ttgaccccgg	1200
agcctgcagt	gggcattccg	cogtgaaccc	cgtgggaatgc	ccccggcacc	cgggctttcc	1260
agcaaagatc	acctggcgcc	gatgagtaag	gcgtacagaa	ccactccaca	ggaggaccgt	1320
cgagatgaaa	tctaacaatg	cgctcatcgt	catcctcggc	accgtcacc	tggtgctgt	1380
aggcataggc	ttggttatgc	cggctactgc	gggcctcttg	cgggatatcg	tccattccga	1440
cagcatcgcc	agtcaactatg	gcgtgctgct	agcgtatat	gcgttgatgc	aattttctatg	1500
cgcacccggt	ctcggagcac	tgctcgaccg	ctttggccgc	cgccagtc	tgctcgcttc	1560
gctacttggg	gccactatcg	actacgcgat	catggcgacc	acacccgtcc	tggtggattct	1620
ctacgcggga	cgcatcggtg	ccggcatcac	cggcgccaca	ggtgcggttg	ctggcgccct	1680
tatcgccgac	atcaccgatg	gggaagatcg	ggctcgccac	ttcgggctca	tgagcgcttg	1740
tttcggcggtg	ggtatggtgg	caggccccgt	ggccggggga	ctgttggcg	ccatctcctt	1800
gcatgcacca	ttccttgcg	cggcggtgct	caacggcctc	aacctactac	tggtgtgctt	1860
cctaattgcag	gagtcgcata	agggagagcg	tcgtccgatg	cccttgagag	ccttcaaccc	1920
agtcagctcc	ttccggtggg	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacaggtgcc	ggcagcgctc	tggttcattt	tcggcgaggga	2040
ccgctttcgc	tgagcgcgga	cgatgatcgg	cctgtcgctt	gcggtattcg	gaatcttgca	2100
cgccctcgct	caagccttcg	tcaactggtc	cgccaccaaa	cgtttcgcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	ccgacgcgct	gggctacgtc	ttgctggcgt	tcgcgacgcg	2220
aggctggatg	gccttcccc	ttatgattct	tctcgcttcc	ggcggcacg	ggatgcccgc	2280
gttgaggcc	atgctgtcca	ggcaggtaga	tgacgaccat	cagggacagc	ttcaaggatc	2340
gctcgcggt	cttaccagcc	taacttcgat	cattggaccg	ctgatcgta	cggcgattta	2400
tgccgcctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgcctc	cccgcggtgc	gtcgcggtgc	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcggc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2640
tcagcagcc	tgacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcatg	2700
atcgtgctcc	gctcggtgag	gactagaatt	gactcctcg	accgccaatt	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgtga	2820
atcacacccc	accggggggg	gggattgcag	tcaccgatct	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagctt	gcaatgagct	actccgtggg	acaggtggcc	ggcttcgccc	2940
gagtgacggg	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggcccacgg	cgctacagcg	acgcccacct	cgaccggctg	cagcagatcc	3060
gtttctaccg	ggagctgggc	ttcccgtcgc	acgaggtcgc	cgccttgctc	gacgacccgg	3120
ccgcggaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcggga	3180

aactgcagaa	gatggcgggc	gccgtggagc	aggcgatgga	ggcacgcagc	atgggaatca	3240
acctcaccac	ggaggagaag	ttcgaggctt	tggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	ggaacgctgg	gggaacaccg	acgcctaccg	ccagtcgaag	gagaagaccg	3360
cctcgtacac	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcaccgcgg	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacgccc	3480
ccgaggacca	ccggcagggc	atcgcccgcg	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccgcca	3600
agccgggcct	cgccgcctac	atgcgcgacg	cgatccctcg	caacgccgtc	cggcacaccc	3660
cctgagcggg	ggcgtggccc	cggtctctcc	gcccgggtct	accccacggc	tactcccg	3720
gccacgacca	ccgccgtccc	gtacgcgcac	acctcggtgc	ccacgtccgc	cgctccgctc	3780
acgtcgaaac	ggaagatccc	cggttaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgcgcggaac	ccctatttgt	ttatttttct	aaatacattc	aaatatgtat	ccgctcatga	3900
gacaataacc	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgcccttatt	cccttttttg	cggcattttg	ccttccgtgt	tttgctcacc	4020
cagaaacgct	ggtagaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4080
tgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tgcggccgaa	gaacgttttc	4140
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccg	attgacgcgc	4200
ggcaagagca	actcggtcgc	cgcatatact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggga	tgacagtaag	agaattatgc	agtgcgtgca	4320
taacctagag	tgataaacct	gcggccaact	tacttctgac	aacgatcgga	ggacggaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tgccttgat	cggtgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacggt	gcgcaacta	ttaactggcg	aactacttac	tctagcttcc	cggaacaat	4560
taatagactg	gatggaggcg	gataaagttg	caggaccact	tctgcgctcg	gcccttccg	4620
ctggctggtt	tattgctgat	aaatctggag	ccggtgagcg	tgggtctcgc	ggatcattgc	4680
cagcactggg	gccagatggg	aagccctccc	gatcgtagt	tatctacacg	acggggagtc	4740
aggcaactat	ggatgaacga	aatagacaga	tgcgtgagat	agggtgcctca	ctgattaagc	4800
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgctcg	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cgggtggttt	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgcta	cctgttacca	gtggctgctg	5220
ccagtggcga	taagtctgtg	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5280
cgcagcggtc	gggtcgaacg	gggggttcgt	gcacacagcc	cagcttgagg	cgaacgacct	5340
acaccgaact	gagataccta	cagcgtgagc	tatgagaaa	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggtatccg	gtaagcggga	gggtcggaac	aggagagcgc	acgagggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgatgatg	tgcgtcaggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acggttctcg	gccttttgct	ggccttttgc	tcacatgttc	tttctcgctg	5640
tatcccttga	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcgagtcag	tgagcgagga	agcggaagag	cgcccaatac	5760
gcaaaccgcc	tctccccgcg	cgttggccga	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggc	ggcgtagcag	gtcagccgcc	ccagcgggtg	tcaccaaccg	gggtggaacg	5880
gcgcgggtat	cggtgtgtgc	cgtggcgctc	attccaacct	ccgtgtgttt	gtgcaggttt	5940
cgcgtgttgc	agtccctcgc	accggcacc	gcagcgaggg	gctcacgggt	gccgggtggg	6000
cgactagtgc	agtgatggg	atgggtgatg	cctcgagatc	taagcttgga	tccgcggccg	6060
ctacgtagaa	ttcccatggc	cgtcccttct	tctgacgcgc	tccacgctgc	ctcctcacgt	6120
gacgtgaggt	gcaagcccg	acgttccgcg	tgccacgcgc	tgagccgcgc	cgtgccgtcg	6180
gctccctcag	cccgcccgcc	cgtgggagcc	cgctcgata	tgtacaccgc	agaagctccc	6240
agcgtcctcc	tgggcccgcg	tactcgacca	ccacgcacgc	acaccgcact	aacgattcgg	6300
ccggcgctcg	attcgccgg	cgtcgatttc	ggcggcgct	cgattcggcc	ggcgctcgat	6360
tgcggccggc	ctcgattcgg	ccgagcagaa	gagtgaacaa	ccaccgacca	cgcttccgct	6420
ctgcgcgcgc	tacccgacct	acctccgcga	gctcgaagca	gctcccggga	gtaccgcctg	6480
actcaccgcg	ctgtgtctac	catccaccga	cgcaaagccc	aaccgagca	cacctcttgc	6540
accaaggtgc	cgacgtggc	tttccgctcg	cagggttcca	gaagaaatcg	aacgatccag	6600
cgcggcaagg	ttcaaaaagc	aggggttggt	ggggaggagg	ttttgggggg	tgtcgccggg	6660

```

atacctgata tggctttgtt ttgcgtagtc gaataatattt ccatatagcc tcggcgcgctc 6720
ggactcgaat agttgatgtg ggcgggcaca gttgccccat gaaatccgca acggggggcg 6780
tgctgagcga tcggcaatgg gcggatgcgg tgttgcttcc gcaccggccg ttcgcgacga 6840
acaacctcca acgaggtcag taccggatga gccgcgacga cgcattggca atgcggtacg 6900
tcgagcattc accgcacgcg ttgctcggat ctatcgtcac cgactgcgat cacgttgacg 6960
ccgcgatgcg cgcattcgag caaccatccg accatccggc gccgaactgg gtcgcacaat 7020
cgccgtccgg ccgcgcacac atcggatggg ggctcggccc caaccacgtg tgccgcaccg 7080
acagcgcccg actgacgcca ctgcgctacg cccaccgcat cgaaaccggc ctcaagatca 7140
gcgtcggcgg cgatttcgcg tatggcgggc aactgaccaa aaacccgatt caccocgatt 7200
gggagacgat ctacggcccg gccaccccg acacattgcy gcagctggcc accatccaca 7260
caccocggca gatgccgcyt cggcccgatc gggccgtggg cctggggccg aacgtcacca 7320
tgttcgacgc caccggcga tgggcatacc cgcagtggtg gcaacaccga aacggaaccg 7380
gccgcgactg ggaccatctc gtccctgcagc actgccacgc cgtcaacacc gaggttcacg 7440
caccactgcc gttcaccgaa gtacgcgcca ccgcgcaatc catctccaaa tggatctggc 7500
gcaattttcac cgaagaacag taccgagccc gacaagcgca tctcgggtcaa aaaggcggca 7560
aggcaacgac actcgccaaa caagaagccg tccgaàacaa tgcaagaaag tacgacgaac 7620
atacgatgcg agaggcgatt atctgatggg cggagccaaa aatccggtgc gccgaaagat 7680
gacggcagca gcagcagccg aaaaattcgg tgccctccact cgcacaatcc aacgcttggt 7740
tgctgagccg cgtgacgatt acctcggccg tgcgaaagct cgcctgaca aagctgtcga 7800
gctgcggaag caggggttga agtaccggga aatcgccgaa gcgatggaac tctcgaccgg 7860
gatcgtcggc gattactgc acgacgccc caggcacggc gagatttcag cggaggatct 7920
gtcggcgtaa ccaagtcagc gggttgtcgg gttccggccg gcgctcggca ctcggaaccg 7980
ccggcggatg gtgttctgcc tctggcgag cgtcagctac cgcgaaggc ctgtcatcga 8040
ccggcttcga ctgaagtatg agcaacgtca cagcctgtga ttggatgatc cgtcacgct 8100
cgaccgctac ctgttcagct gccgcccgt gggcatgagc aacggccaac tctcgttcaa 8160

```

<210> 109

<211> 8160

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector pTip
CH2

<400> 109

```

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttccccttg cgttgggtgat tgccgggtcag ggcagccatc cgccatcgtc gcgtaggggtg 120
tcacacccca ggaatcgcgt cactgaacac agcagccggt aggacgacca tgactgagtt 180
ggacaccatc gcaaattccgt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagccctca tgcacagcat 300
cgcggccggg gtggagttca tcgaggtcta cggcagcgac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaggc caagacattc ggcatcgccc gcgtccctcg 480
cccggccagg ttcggcgata tcgcgagccg gcgtggggac gtctcgttc tcgacggggg 540
gaagatcgtc gggaaacatc gcgcgatagt acgcacgtcg ctgcgcgtcg gagcgtcggg 600
gatcatcctg gtggacagtg acatcaccag catcgcggac cggcgtctcc aaagggccag 660
ccgaggttac gtcttctccc ttcccgtcgt tctctccggc cgcgaggagg ccatcgccctt 720
cattcgggac agcggtatgc agctgatgac gctcaaggcg gatggcgaca tttccgtgaa 780
ggaaactcgg gacaatccgg atcggtggc cttgctgttc ggcagcgaaa aggggtggcc 840
ttccgacctg ttcgaggagg cgtcttccgc ctcggtttcc atccccatga tgagccagac 900
cgagtctctc aacgtttccg ttcccctcgg aatcgcgctg cacgagagga tcgacaggaa 960
tctcgcggcc aaccgataag cgcctctgtt cctcggacgc tcggttcctc gacctcgatt 1020
cgtcagtgat gatcacctca caggcgagcg atcaccactg acatatcgag gtcaacgggtc 1080
gtggtcggg cgggcactcc tcgaaggcgc ggcgcagcgc cttgaacgac tcgatgactc 1140
tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgaccccg 1200
agcctgcatg gggcattccg ccgtgaacct ggtggaatgc ccccgccacc cgggctttcc 1260

```


agcaaagatc	acctggcgcc	gatgagtaag	gcgtacagaa	ccactccaca	ggaggaccgt	1320
cgagatgaaa	tctaacaatg	cgctcatcgt	catcctcggc	accgtcaccc	tggatgctgt	1380
aggcataggc	ttggttatgc	cggtactgcc	gggctctctg	cgggatatcg	tccattccga	1440
cagcatcgcc	agtcactatg	gcgtgctgct	agcgtatat	gcgttgatgc	aatttctatg	1500
cgcaccggtt	ctcggagcac	tgtccgaccg	ctttggccgc	cgcaccagtc	tgctcgcttc	1560
gctacttgga	gccactatcg	actacgcgat	catggcgacc	acaccgctcc	tgtggattct	1620
ctacgccgga	cgcacgtgg	ccggcatcac	cggcgccaca	ggtgcggttg	ctggcgcccta	1680
tatcgccgac	atcaccgatg	gggaagatcg	ggctcgccac	ttcgggctca	tgagcgcttg	1740
tttcggcggtg	ggtatggtgg	caggccccgt	ggccggggga	ctggtggggg	ccatctcctt	1800
gcatgcacca	ttccttgccg	cggcggtgct	caacggcctc	aacctactac	tggtgtgctt	1860
cctaatagcag	gagtcgcata	agggagagcg	tgcctcgatg	cccttgagag	ccttcaaccc	1920
agtcagctcc	ttccgggtgg	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacaggtgcc	ggcagcgctc	tgggtcattt	tcggcgagga	2040
ccgctttcgc	tggagcgcga	cgatgatcgg	ctgtcgctt	gcggtattcg	gaatcttgca	2100
cgcctcgct	caagccttcg	tcaactggctc	cggcaccaaa	cgtttcggcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	cgcagcgctc	gggctacgtc	ttgctggcgt	tcgcgacgcg	2220
aggctggatg	gccttcccc	ttatgattct	tctcgcttcc	ggcggcacgc	ggatgcccgc	2280
gttgacggcc	atgctgtcca	ggcaggtaga	tgacgaccat	cagggacagc	ttcaaggatc	2340
gctcgcggt	cttaccagcc	taacttcgat	cattggaccg	ctgatcgta	cggcgattta	2400
tggcgctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgcctc	accgcgttgc	gtcgcggtgc	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcggc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2640
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcacg	2700
atcggtgctcc	tgtcggttag	gactagaatt	gatctcctcg	accgccaat	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgtga	2820
atcacacccc	accggggggt	gggattgcag	tcaaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagctt	gcaatgagct	actccgtggg	acaggtggcc	ggcttcgccg	2940
gagtacgggt	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggcccaccg	cgctacagcg	acgccgacct	cgaccggctg	cagcagatcc	3060
tgttctaccg	ggagctgggc	ttcccgcctc	acgaggtcgc	cgccttgcct	gacgacccgg	3120
cccgcgaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcggga	3180
aactgcagaa	gatggcgcg	gccgtggagc	aggcgatgga	ggcacgcgag	atgggaatca	3240
acctcacccc	ggaggagaag	ttcgaggctt	tcggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	ggaacgctgg	gggaacaccg	acgcctaccg	ccagtccaag	gagaagaccg	3360
cctcgtagac	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcacccggc	3420
gcttcgctcg	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacgccc	3480
ccgaggacca	ccggcagggc	atcgcccgcga	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgcgcgca	3600
agccgggccc	cgcgccttac	atgcgcgacg	cgatcctcgc	caacgcgcgt	cggcacaccc	3660
cctgagcggt	ggtcgtggcc	cgggtctccc	gcccgggtct	accccaacgg	tactcccgg	3720
gccacgacca	ccgccgtccc	gtacgcgcac	acctcggtgc	ccacgtccgc	cgcctccgtc	3780
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgcgcggaac	ccctatttgt	ttatttttct	aaatacattc	aaatatgtat	ccgctcatga	3900
gacaataaac	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgccttattt	cccttttttg	cggcattttg	ccttccgtgt	tttgctcacc	4020
cagaaacgct	ggtgaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggttaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccc	4200
ggcaagagca	actcggtcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgctgcca	4320
taaccatgag	tgataaacct	gcggccaact	tacttctgac	aacgatcgga	ggaccgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacggt	gcgcaaaact	tttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaagtgt	caggaccact	tctgcgctcg	gcccttcggg	4620
ctggctgggt	tattgctgat	aaatctggag	ccgggtgagcg	tgggtctcgc	ggtatcattg	4680
cagcactggg	gccagatggt	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740

aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	aggcgcctca	ctgattaagc	4800
atttgtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cgggtggtttg	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgcta	cctgttacca	gtggctgctg	5220
ccagtggcga	taagtcgtgt	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5280
cgcagcggtc	gggctgaacg	gggggttcgt	gcacacagcc	cagcttgagg	cgaacgacct	5340
acaccgaact	gagataccta	cagcgtgagc	tatgagaaa	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggatccg	gtaagcggca	gggtcggaac	aggagagcgc	acgaggggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acggttcctg	gccttttgc	ggccttttgc	tcacatgttc	tttctgcgt	5640
tatccctga	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcagatcag	tgagcgagga	agcgggaagag	cgcccaatac	5760
gcaaaccgcc	tctccccgcg	cgttgggcca	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggc	ggcgtagcag	gtcagccgcc	ccacgggtgg	tcaccaaccg	gggtggaacc	5880
gcgcgggtat	cgggtgtgtc	cgtggcgctc	attccaacct	ccgtgtgttt	gtgcaggttt	5940
cgcgtgttgc	agtcctcgc	accggcacc	gcagcgaggg	gctcacgggt	gccgggtgggt	6000
cgactagtgc	agtgtggtg	atggtgatgt	cctcgagatc	taagcttgg	tcgcggcccg	6060
ctacgtagaa	ttcccatatg	cgtcccttc	tctgacgccg	tccacgctgc	ctcctcacgt	6120
gacgtgaggt	gcaagcccg	acgttccgcg	tgccacgccg	tgagccgccg	cgtgccgtgc	6180
gtccctcag	cccggggcgc	cgtgggagcc	cgcctcgata	tgtacaccgc	agaagctccc	6240
agcgtcctcc	tgggcgcga	tactcgacca	ccacgcacgc	acaccgcact	aacgattcgg	6300
ccggcgctcg	attcgcccg	cgtcgattc	ggccggcgct	cgattcgcc	ggcgctcgat	6360
tcggccggcg	ctcgattcgg	ccgagcagaa	gagtgaacaa	ccaccgacca	cgttccgct	6420
ctgcgcgccg	tacccgacct	acctcccga	gctcgaagca	gctcccggga	gtaccgccgt	6480
actcaccgc	ctgtgtcac	catccaccga	cgaaagccc	aacccgagca	cacctcttgc	6540
accaaggtgc	cgaccgtggc	tttccgctcg	cagggttcca	gaagaaatcg	aacgatccag	6600
cgcggcaagg	ttcaaaaagc	aggggttgg	ggggagagg	ttttgggggg	tgtcgccggg	6660
atacctgata	tggctttgtt	ttgcgtagtc	gaataatttt	ccatatagcc	tcggcgcgctc	6720
ggactcgaat	agttgatgtg	ggcgggcaca	gttgcccat	gaaatccgca	acggggggcg	6780
tgctgagcga	tcggcaatgg	gcggatgcgg	tggtgcttcc	gcaccggccg	ttcgcgacga	6840
acaacctcca	acgaggtcag	taccggatga	gccgcgacga	cgcattggca	atgcggtagc	6900
tcgagcattc	accgcacgcg	ttgctcggat	ctatcgtcat	cgactgcgat	cacgttgacg	6960
ccgcgatgcg	cgcattcgag	caaccatccg	accatccggc	gccgaactgg	gtcgacacat	7020
cgcggtccgg	ccgcgcacac	atcggtgggt	ggctcggccc	caaccacgtg	tgccgcaccg	7080
acagcgcgccg	actgacgcca	ctgcgtacg	cccaccgcat	cgaaaccggc	ctcaagatca	7140
gcgtcggcgg	cgatttcgcg	tatggcgggc	aactgaccaa	aaacccgatt	caccctcgatt	7200
gggagacgat	ctacggcccg	gccaccccg	acacattgcg	gcagctggcc	accatccaca	7260
caccctggca	gatgccgcgt	cggcccgatc	gggcgtggg	cctgggcgcg	aacgtcacca	7320
tggtcgacgc	caccggcgga	tgggcatacc	cgcagtgggtg	gcaacaccga	aacgggaaccg	7380
gccgcgactg	ggaccatctc	gtcctgcagc	actgccacgc	cgtcaacacc	gagttcacga	7440
caccactgcc	gttcaccgaa	gtacgcgcca	ccgcgcaatc	catctccaaa	tggatctggc	7500
gcaatttcac	cgaagaacag	taccgagccc	gacaagcgca	tctcgggtcaa	aaaggcggca	7560
aggcaacgac	actcgccaaa	caagaagccg	tccgaaaaca	tgcaagaaag	tacgacgaac	7620
atacgatgcg	agaggcgatt	atctgatggg	cggagccaaa	aatccgggtgc	gccgaaagat	7680
gacggcagca	cgcagcgcg	aaaaattcgg	tgcctccact	cgcacaatcc	aacgcttgtt	7740
tgctgagccg	gctgacgatt	acctcggcgg	tcggaagct	cgcggtgaca	aagctgtcga	7800
gctgcggaag	caggggttga	agtaccggga	aatcgccgaa	gcgatggaac	tctcgaccgg	7860
gatcgtcggc	cgattactgc	acgacgccc	caggcacggc	gagatttcag	cggaggatct	7920
gtcggcgtaa	ccaagtcagc	gggttgtcgg	gttccggccg	gcgctcggca	ctcggaccgg	7980
ccggcgggatg	gtgttctgcc	tctggcgag	cgtcagctac	cgccgaaggc	ctgtcatcga	8040
ccggcttcga	ctgaagtatg	agcaacgtca	cagcctgtga	ttggatgatc	cgtcacgct	8100
cgaccgctac	ctgttcagct	gccgcccgct	gggcatgagc	aacggccaac	tctcgttcaa	8160

<210> 110
 <211> 8189
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic vector
 pTip LNH1

<400> 110
 gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
 cttccccttg cgttgggtgat tgccgggtcag ggcagccatc cgccatcgtc gcgtaggggtg 120
 tcacacccca ggaatcgctg cactgaacac agcagccggt aggacgacca tgactgagtt 180
 ggacaccatc gcaaatacgt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
 gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagcccctca tgcacagcat 300
 cgccggccggg gtggagttca tccaggtcta cggcagcgac agcagtcctt ttccatctga 360
 gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
 caaccagttg ttcaaggggg agcgggaaggc caagacattc ggcatcgccc gcgtccctcg 480
 cccggccaggg ttccggcgata tcccgagccg gcgtggggac gtcgtcgttc tcgacggggg 540
 gaagatcgtc ggggaacatcg gcgcgatagt acgcacgtcg ctccgctcg gagcgtcggg 600
 gatcatcctg gtggacagtg acatcaccag catcgccggac cggcgtctcc aaagggccag 660
 ccgaggttac gtcttctccc ttcccgtcgt tctctccggg cgcgaggagg ccatcgccct 720
 cattcgggac agcgggtatg agctgatgac gctcaaggcg gatggcgaca tttccgtgaa 780
 ggaactcggg gacaatccgg atcggctggc cttgctgttc ggacgcgaaa aggggtgggccc 840
 ttccgacctg ttccgaggagg cgtcttccgc ctccggtttc atcccatga tgagccagac 900
 cgagtctctc aacgtttccg tttccctcgg aatcgcgctg cacgagagga tcgacaggaa 960
 tctcggcgcc aaccgataag cgcctctggt cctcggacgc tcggttcctc gacctcgatt 1020
 cgtcagtgat gatcacctca caccggcagc atcaccactg acatatcgag gtcaacgggtc 1080
 gtggtccggg cgggcaactc tcgaaggcgc ggcgcagccc cttgaacgac tcgatgactc 1140
 tagagtaacg ggctactccg tttaacggac cccgttctca cgctttaggc ttgaccccgg 1200
 agcctgcatg gggcattccg ccgtgaaccc ggtggaatgc ccccgccacc cgggctttcc 1260
 agcaaagatc acctggcgcc gatgagtaag gcgtacagaa ccaactccaca ggaggaccgt 1320
 cgagatgaaa tctaacaatg cgctcatcgt catcctcggc accgtcacc tggatgctgt 1380
 aggcataaggc ttggttatgc cggtaactgc gggcctcttg cgggatatcg tccattccga 1440
 cagcatcgcc agtcactatg gcgtgctgct agcgtatat gcgttgatgc aatttctatg 1500
 cgcacccgtt ctcggagcac tgcccgacc ctttggccgc cgccagtc tgcctcgctc 1560
 gctacttggg gccactatcg actacgcgat catggcgacc acaccgctc tgtggattct 1620
 ctacgccgga cgcacgtgg ccggcatcac cggcgccaca ggtgcggttg ctggcgccca 1680
 tatcgccgac atcaccgatg gggaagatcg ggctcgccac ttcgggctca tgagcgcttg 1740
 tttcggcgct ggtatgggtg caggccccgt ggccggggga ctggtgggcg ccatctcctt 1800
 gcatgcacca ttcttgccg cggcggtgct caacggcctc aacctactac tgggtgctt 1860
 cctaatacgag gagtcgcata agggagagcg tcgtccgat cccttgagag ccttcaaccc 1920
 agtcagctcc ttccgggtgg cgcggggcat gactatcgtc gccgcactta tgactgtctt 1980
 ctttatcatg caactcgtag gacaggtgcc ggcagcgctc tgggtcattt tcggcgagga 2040
 ccgctttcgc tggagcgaga cgatgatcgg cctgtcgctt gcggtattcg gaatcttgca 2100
 cgccctcgct caagccttcg tcaactggtc cgccaccaaa cgtttcggcg agaagcaggc 2160
 cattatcgcc ggcattggcg ccgacgcgct gggctacgtc ttgctggcgt tcgcgacgcg 2220
 aggctggatg gccttcccca ttatgattct tctcgcttcc ggcggcatcg ggatgcccgc 2280
 gttgcaggcc atgctgtcca ggcaggtaga tgacgacct cagggacagc ttcaaggatc 2340
 gctcgcggct cttaccagcc taacttcgat cattggaccg ctgatcgtca cggcgattta 2400
 tgccgcctcg gcgagcacat ggaacgggtt ggcattggat gtaggcgcgc ccctatacct 2460
 tgtctgcctc ccccggttgc gtcgcggtgc atggagccgg gccacctcga cctgaatgga 2520
 agccggcggc acctcgctaa cggattcacc actccaagaa ttggagccaa tcaattcttg 2580
 cggagaactg tgaatgcgca aaccaaccct tggcagaaca tatccatcgc gtccgccatc 2640
 tccagcagcc gcacgcggcg catctcgggc agcgttgggt cctggccacg ggtgcgcgat 2700
 atcgtgctcc tgctggttag gactagaatt gatctcctcg accgccaatt gggcatctga 2760
 gaatcatctg cgtttctcgc acgcaacgta cttgcaacgt tgcaactcct agtgttgtga 2820

atcacacccc	accgggggggt	gggattgacg	tcaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagcct	gcaatgagct	actccgtggg	acagggtggc	ggcttcgccc	2940
gagtgcaggt	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggcccaccg	cgctacagcg	acgccgacct	cgaccggctg	cagcagatcc	3060
tgttctaccg	ggagctgggc	ttcccgcctc	acgaggtcgc	cgccctgctc	gacgacccgg	3120
ccgcggaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcgggg	3180
aactgcagaa	gatggcggcg	gccgtggagc	aggcgatgga	ggcacgcagc	atgggaatca	3240
acctcacccc	ggaggagaag	ttcgaggtct	tcggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	ggaacgctgg	gggaacaccg	acgcctaccg	ccagtccaag	gagaagaccg	3360
cctcgtagac	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcacccggc	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacgccc	3480
ccgaggacca	ccggcagggc	atcgcccgcg	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccggca	3600
agccgggcct	gcgcgcctac	atgcgcgacg	cgatcctcgc	caacgcctgc	cggcacaccc	3660
cctgagcggg	ggctcggtgg	cggtctcccc	gcccgggtct	accccacggc	tactcccggg	3720
gccacgacca	ccgcctcccc	gtacgcgcac	acctcggtgc	ccacgtccgc	cgctccgctc	3780
acgtcgaaac	ggaagatccc	cggttaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgcgcggaac	ccctatttgt	ttatttttct	aaatacatte	aaatatgtat	ccgctcatga	3900
gacaataacc	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttcctgtg	cgcccttatt	cccttttttg	cggcattttg	ccttcctgtt	tttgctcacc	4020
cagaaaacgt	ggcgaaaagta	aaagatgctg	aaagatcagtt	gggtgcacga	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cacttttaaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccg	4200
ggcaagagca	actcggctcg	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgtgccca	4320
taaccatgat	tgataacact	gcggccaact	tacttctgac	aacgatcgga	ggacgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacgtt	gcgcaacta	ttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaaagtt	caggaccact	tctgcgctcg	gcccttccgg	4620
ctggctgggt	tattgtctgat	aaatctggag	ccggtgagcg	tgggtctcgc	ggtatcattg	4680
cagcactggg	gccagatggg	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740
aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	agggtgcctca	ctgattaaag	4800
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cgggtgggtt	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgcta	cctgttacca	gtggctgctg	5220
ccagtggcga	taagtcgtgt	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5280
cgcagcggtc	gggctgaacg	gggggttcgt	gcacacagcc	cagcttggag	cgaacgacct	5340
acaccgaact	gagataccta	cagcgtgagc	tatgagaaa	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggtatccg	gtaagcggca	gggtcggaac	aggagagcgc	acgagggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acggttcctg	gccttttgct	ggccttttgc	tcacatgttc	tttctcgctg	5640
tatcccctga	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcgagtcca	tgagcgagga	agcggaagag	cgcccaatac	5760
gcaaaccgcc	tctccccgcg	cgttggcoga	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggg	ggcgtagcag	gtcagccgcc	ccagcggtag	tcaccaaccg	gggtggaacg	5880
gcgcgggtat	ggggtgtgtc	cgtggcgctc	attccaacct	ccgtgtgttt	gtgcaggttt	5940
cgcgtgttgc	agtccctcgc	accggcacc	gcagcgaggg	gctcacgggt	gccggtgggt	6000
cgactagttc	atcctcgaga	tctaagcttg	gatccgcggc	cgctacgtag	aattcccata	6060
tggtgatggg	gatgggtggc	catggatat	ctccttctta	aagttaaaca	aaattatttc	6120
tagacgccgt	ccacgctgcc	tctcacgtg	acgtgaggtg	caagcccgga	cgttccgcgt	6180
gccacgccgt	gagccgcgcg	gtgccgtcgg	ctccctcagc	ccgggcggcc	gtgggagccc	6240
gcctcgatat	gtacacccga	gaagctccca	gcgtcctcct	gggcgcgat	actcgaccac	6300

```

cacgcacgca caccgcacta acgattcggc cggcgctcga ttcggccggc gctcgattcg 6360
gccggcgctc gattcggccg gcgctcgatt cggccggcgc tcgattcggc cgagcagaag 6420
agtgaacaac caccgaccac gcttcgcgtc tgcgcgccgt acccgacctt cctcccgcag 6480
ctcgaagcag ctcccgggag taccggcgta ctcacccgcc tgtgtcacc atccaccgac 6540
gcaaagccca acccgagcac acctcttgca ccaaggtgcc gaccgtggct ttccgctcgc 6600
agggttccag aagaaatcga acgatccagc gcggcaaggt tcaaaaagca ggggttggtg 6660
gggaggagggt tttgggggggt gtcgccggga tacctgatat ggctttgttt tgcgtagtcg 6720
aataattttc catatagcct cggcgcgctc gactcgaata gttgatgtgg gcgggcacag 6780
ttgccccatg aaatccgcaa cggggggcgt gctgagcgat cggcaatggg cggatgcggt 6840
gttgcttccg caccggccgt tcgcgacgaa caacctccaa cgaggtcagt accggatgag 6900
ccgcgacgac gcattggcaa tgcggtacgt cgagcattca ccgcacgcgt tgctcggatc 6960
tatcgtcacc gactgcgac acgttgacgc cgcgatgcgc gcattcgagc aaccatccga 7020
ccatccggcg ccgaactggg tcgcacaatc gccgtccggc cgcgcacaca tcggatggtg 7080
gctcggcccc aaccacgtgt gccgcaccga cagcgcccca ctgacgccac tgcgtacgc 7140
ccaccgcac gaaaccggcc tcaagatcag cgtcggccggc gatttcgcgt atggcgggca 7200
actgacaaa aacccgattc accccgattg ggagacgac tacggcccg ccaccccgta 7260
cacattgcgg cagctggcca ccatccacac accccggcag atgcccgcgt gccccgatcg 7320
ggcgtggggc ctggggccgca acgtcaccat gttcgacgcc acccgccgat gggcataccc 7380
gcagtgggtg caacaccgaa acggaaccgg ccgcgactgg gaccatctcg tcctgcagca 7440
ctgccacgcc gtcaacaccg agttcacgac accactgccg ttcaccgaag tacgcgccac 7500
cgcgcaatcc atctccaaat ggatctggcg caatttcacc gaagaacagt accgagcccg 7560
acaagcgcac ctccggtcaaa aaggcggcaa ggcaacgaca ctccgcaaac aagaagccgt 7620
ccgaaacaat gcaagaaagt acgacgaaca tacgatgcga gaggcgatta tctgatgggc 7680
ggagccaaaa atccggtgcg ccgaaagatg acggcagcag cagcagccga aaaattcggg 7740
gcctccactc gcacaatcca acgcttggtt gctgagccgc gtgacgatta cctcggccgt 7800
gcgaaagctc gccgtgacaa agctgtcgag tctcgggaagc aggggttgaa gtaccgggaa 7860
atcgccgaag cgatggaact ctcgaccggg atcgtcggcc gattactgca cgacgccgc 7920
aggcacggcg agatttcagc ggaggatctg tcggcgtaac caagtcagcg ggttgctggg 7980
ttccggcccg cgtcggcac tcggaccggc cggcggtatg tggtctgcct ctggcgagc 8040
gtcagctacc gccgaaggcc tgtcatcgac cggcttcgac tgaagtatga gcaacgtcac 8100
agcctgtgat tggatgatcc gtcacgctc gaccgctacc tgttcagctg ccgcccgcgt 8160
ggcatgagca acggccaact ctcgttcaa 8189

```

<210> 111

<211> 8183

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip LNH2

<400> 111

```

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttccccctt cgttggtgat tgccgggtcag ggcagccatc cgccatcgtc gcgtagggtg 120
tcacacccca ggaatcgctg cactgaacac agcagccggt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgt ccgatcccgc ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagcccctca tgcacagcat 300
cgcggccggg gtggagttca tcgaggtcta cggcagcgac agcagtcctt ttccatctga 360
gttgctggat ctgtgcgggc ggcagaacat accggtccgc ctcatcgact cctcgatcgt 420
caaccagttg ttcaaggggg agcggaaggc caagacattc ggcacgccc gcgtccctcg 480
cccggccagg ttcggcgata tcgcgagccg gcgtggggac gtcgtcggtc tcgacggggg 540
gaagatcgct gggaaacatc gcgcgatagt acgcacgtcg ctcgcgctcg gagcgtcggg 600
gatcatcctg gtggacagtg acatcaccag catcgcggac cggcgtctcc aaagggccag 660
ccgaggttac gtcttctccc ttcccgtcgt tctctccggt cgcgaggagg ccatcgccct 720

```

cattcggggac	agcgggtatgc	agctgatgac	gctcaaggcg	gatggcgaca	tttccgtgaa	780
ggaactcggg	gacaatccgg	atcgggtggc	cttgctgttc	ggcagcgaaa	aggggtgggccc	840
ttccgacctg	ttcaggagg	cgtcttccgc	ctcgggttcc	atccccatga	tgagccagac	900
cgagtctctc	aacgtttccg	tttccctcgg	aatcgcgctg	cacgagagga	tcgacaggaa	960
tctcgcggcc	aaccgataag	cgctctgtt	cctcggacgc	tcgggttctc	gacctcgatt	1020
cgtcagtgat	gatcacctca	cacggcagcg	atcaccactg	acatatcgag	gtcaacggtc	1080
gtggtcgggg	cgggcactcc	tcgaaggcgc	ggcgcagcgc	cttgaacgac	tcgatgactc	1140
tagagtaacg	ggctactccg	tttaacggac	cccgtttctca	cgcttttaggc	ttgacccccg	1200
agcctgcatg	gggcattccg	ccgtgaaccc	ggtggaatgc	ccccggcacc	cgggctttcc	1260
agcaaagatc	acctggcgcc	gatgagtaag	gcgtagacaa	ccactccaca	ggaggaccgt	1320
cgagatgaaa	tctaacaatg	cgctcatcgt	catcctcggc	accgtcacc	tggatgctgt	1380
aggcataggc	ttggttatgc	cggtactgcc	gggcctcttg	cgggatatcg	tccattccga	1440
cagcatcgcc	agtcactatg	gcgtgctgct	agcgctatat	gcgttgatgc	aatttctatg	1500
cgcacccggt	ctcggagcac	tgtccgaccg	ctttggccgc	cgcccagtc	tgctcgcttc	1560
gctacttggg	gccactatcg	actacgcgat	catggcgacc	acaccgctcc	tgtggattct	1620
ctacgccgga	cgcactcgtg	ccggcatcac	cggcgccaca	ggtgcggttg	ctggcgcta	1680
tatcgccgac	atcaccgatg	gggaagatcg	ggctcgccac	ttcgggctca	tgagcgcttg	1740
tttcggcggtg	ggtatggtgg	caggccccgt	ggccggggga	ctggtgggcg	ccatctcctt	1800
gcatgcacca	ttccttgccg	cggcggtgct	caacggcctc	aacctactac	tgggtcgctt	1860
cctaattcgag	gagtcgcata	agggagagcg	tcgtccgatg	cccttgagag	ccttcaaccc	1920
agtcagctcc	ttcgggtggg	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacagggtgc	ggcagcgctc	tgggtcattt	tcggcgagga	2040
ccgctttcgc	tggagcgcga	cgatgatcgg	cctgtcgctt	gcggtattcg	gaatcttgca	2100
cgcctctcgt	caagccttcg	tcactggtcc	cgccacaaa	cgtttcggcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	ccgacgcgct	gggtactcgt	ttgctggcgt	tcgcgacgc	2220
aggctggatg	gccttcccca	ttatgattct	tctcgcttcc	ggcgccatcg	ggatgccgc	2280
gttgcaggcc	atgctgtcca	ggcaggtaga	tgacgacat	cagggacagc	ttcaaggatc	2340
gctcgcggct	cttaccagcc	taacttcgat	cattggaccg	ctgatcgta	cggcgattta	2400
tgccgcctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgcctc	cccgcgttgc	gtcgcggtgc	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcgcc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2640
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcatg	2700
atcgtgctcc	tgctggttag	gactagaatt	gatctcctcg	accgcgaatt	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgtga	2820
atcacacccc	accggggggt	gggattgcag	tcaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttat	ataggagctt	gcaatgagct	actcgtggg	acaggtggcc	ggcttcgccc	2940
gagtgacggt	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggccaccgg	cgctacagcg	acgccgacct	cgaccggctg	cagcagatcc	3060
tgttctaccg	ggagctgggc	ttcccgtcgc	acgaggtcgc	cgccctgctc	gacgaccg	3120
ccgcggaccc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcgggg	3180
aactgcagaa	gatggcgcg	gccgtggagc	aggcgatgga	ggcacgcagc	atgggaatca	3240
acctcacccc	ggaggagaag	ttcagaggtc	tcggcgactt	cgaccccgac	cagtacgagg	3300
aggaggtccg	ggaacgctgg	gggaacaccc	acgcctaccg	ccagtccaag	gagaagaccg	3360
cctcgtagac	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcacccggc	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacgccc	3480
ccgaggacca	ccggcagggc	atcgcccgc	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccgcca	3600
agccgggect	cgccgcctac	atgcgcgacg	cgatcctcgc	caacgccgctc	cggcacaccc	3660
cctgagcggt	ggtcgtggcc	cgggtctccc	gcccggctc	accccacggc	tcaactcccgc	3720
gccacgacca	ccgcgcgtcc	gtacgcgcac	acctcgggtg	ccacgtccgc	cgcctccgctc	3780
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840
tgcgcggaac	ccctatttgt	ttatTTTTTct	aaatacatte	aaatatgtat	ccgctcatga	3900
gacaataacc	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgccttattt	ccctTTTTTg	cggcattttg	ccttctggtt	tttgtcacc	4020
cagaaacgct	ggtagaaagta	aaagatgctg	ggtgtcacga	gtgggttaca	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgccg	4200

ggcaagagca	actcggtcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgcgtgcca	4320
taaccatgag	tgataacact	gcggccaaact	tacttctgac	aacgatcgga	ggaccgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacggt	gcgcaaacta	ttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaagtgt	caggaccact	tctgcgctcg	gcccttccgg	4620
ctggctggtt	tattgctgat	aaatctggag	ccggtgagcg	tgggtctcgc	ggatcattg	4680
cagcactggg	gccagatggt	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740
aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	aggtgcctca	ctgattaagc	4800
attggtaaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgctaccag	5040
cggtggtttg	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagttagacc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgctaata	cctgttacca	gtggctgctg	5220
ccagtggcga	taagtctgtg	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5280
cgcagcggtc	gggctgaacg	gggggttcgt	gcacacagcc	cagcttggag	cgaacgacct	5340
acaccgaact	gagatacccta	cagcgtgagc	tatgagaaag	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggatcccg	gtaagcggca	gggtcggaac	aggagagcgc	acgagggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acggttcctg	gccttttgct	ggccttttgc	tcacatgttc	tttctctgct	5640
tatccccctga	ttctgtggat	aaccgtatta	cgccctttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcagtcag	tgagcgagga	agcgggaagag	cgcccaatac	5760
gcaaacccgc	tctccccgcg	cgttgccga	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggg	ggcgtagcag	gtcagccgcc	ccagcgggtg	tcaccaaccg	gggtggaacg	5880
gcgccggtat	cgggtgtgtc	cgtggcgctc	attccaaacct	ccgtgtgttt	gtgcagggtt	5940
cgcgtgttgc	agtccctcgc	accggcaccc	gcagcgaggg	gctcacgggt	gccggtgggt	6000
cgactagttc	agtgatggtg	atggtgatgt	cctcgagatc	taagcttggg	tccgcggccg	6060
ctacgtagaa	ttccctggtt	atatctcctt	cttaaaagtta	aacaaaatta	tttctagacg	6120
ccgtccacgc	tgccctctca	cgtgacgtga	gggtgcaagcc	cggacgttcc	gcgtgccacg	6180
ccgtgagccg	ccgcgtgccg	tcggctccct	cagcccgggc	ggccgtggga	gcccgcctcg	6240
atatgtacac	ccgagaagct	cccagcgtcc	tcctgggccc	cgatactcga	ccaccacgca	6300
cgacacccgc	actaacgatt	cggccggcgc	tcgattcggc	cggcgctcga	ttcggccggc	6360
gtcgcattcg	gccggcgctc	gattcggccg	gcgctcgatt	cggccgagca	gaagagtga	6420
caaccaccga	ccacgcttcc	gctctgcgcg	ccgtaccgga	cctacctccc	gcagctcgaa	6480
gcagctcccc	ggagtaccgc	cgtactcacc	cgcctgtgct	caccatccac	cgacgcaaa	6540
cccaacccga	gcacacctct	tgaccaaggg	tgccgaccgt	ggctttccgc	tcgcagggtt	6600
ccagaagaaa	tcgaacgatc	cagcgcggca	aggttcaaaa	agcaggggtt	gggtggggagg	6660
agggttttggg	gggtgtcgcc	gggatacctg	atatggcttt	gttttgcgta	gtcgaataat	6720
tttccatata	gcctcggcgc	gtcggactcg	aatagttgat	gtgggcgggc	acagttgccc	6780
catgaaatcc	gcaacggggg	gcgtgctgag	cgatcggcaa	tgggcggatg	cgggtgtgct	6840
tccgcaccgc	ccgttcgcga	cgaacaacct	ccaacgaggt	cagtaccgga	tgagccgcga	6900
cgacgcattg	gcaatgcggg	acgtcgagca	ttcaccgcac	gcgttgctcg	gatctatcgt	6960
catcgactgc	gatcacgttg	acgccgcgat	gcgcgcattc	gagcaaccat	ccgaccatcc	7020
ggcgccgaac	tgggtcgcac	aatcgccgtc	cggccgcgca	cacatcggat	ggtggctcgg	7080
ccccaaacca	gtgtgccgca	ccgacagcgc	ccgactgacg	ccactgcgct	acgcccaccg	7140
catcgaaacc	ggcctcaaga	tcagcgtcgg	cggcgatttc	gcgtatggcg	ggcaactgac	7200
caaaaacccg	attcaccocg	attgggagac	gatctacggc	ccggccaccc	cgtaacacatt	7260
gcggcagctg	gccaccatcc	acacaccccg	gcagatgccg	cgtcggcccc	atcgggccgt	7320
gggcctgggg	cgcaacgtca	ccatgttcga	cgccacccgg	cgatgggcat	accgcgagtg	7380
gtggcaacac	cgaacgggaa	ccggccgcga	ctgggaccat	ctcgtcctgc	agcactgcca	7440
cgcgctcaac	accgagttca	cgacaccact	gccgttcacc	gaagtacgcg	ccaccgcgca	7500
atccatctcc	aaatggatct	ggcgcaattt	caccgaagaa	cagtaccgag	ccgcgaagc	7560
gcattctcgt	caaaaaggcg	gcaaggcaac	gacatcgcc	aaacaagaag	ccgtccgaaa	7620
caatgcaaga	aagtacgacg	aacatacgat	gcgagaggcg	attatctgat	gggcggagcc	7680

```

aaaaatccgg  tgcgccgaaa  gatgacggca  gcagcagcag  ccgaaaaatt  cgggtgcctcc  7740
actcgacaaa  tccaacgctt  gtttgctgag  ccgctgacg  attacctcgg  ccgtgcgaaa  7800
gctcgccgtg  acaaagctgt  cgagctgcgg  aagcaggggt  tgaagtaccg  ggaaatcgcc  7860
gaagcgatgg  aactctcgac  cgggatcgtc  ggccgattac  tgcacgacgc  ccgcaggcac  7920
ggcgagattt  cagcggagga  tctgtcggcg  taaccaagtc  agcgggttgt  cgggttcggg  7980
ccggcgctcg  gcactcggac  cggccggcgg  atgggtgttc  gcctctggcg  cagcgtcagc  8040
taccgccgaa  ggcggtcat  cgaccggctt  cgactgaagt  atgagcaacg  tcacagcctg  8100
tgattggatg  atccgctcac  gctcgaccgc  tacctgttca  gctgccgccc  gctgggcatg  8160
agcaacggcc  aactctcggt  caa

```

<210> 112

<211> 8123

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip LCH1

<400> 112

```

gagctcgacc  gcgcgggtcc  cggacgggga  agagcgggga  gctttgccag  agagcgacga  60
cttccccttg  cgttggtgat  tgccggtcag  ggcagccatc  cgccatcgtc  gcgtagggtg  120
tcacacccca  ggaatcgcgt  cactgaacac  agcagccggt  aggacgacca  tgactgagtt  180
ggacaccatc  gcaaatccgt  ccgatcccgc  ggtgcagcgg  atcatcgatg  tcaccaagcc  240
gtcacgatcc  aacataaaga  caacgttgat  cgaggacgtc  gagccccca  tgcacagcat  300
cgcggccggg  gtggagttca  tcgaggtcta  cggcagcgac  agcagtcctt  ttccatctga  360
gttgctggat  gtgtgcgggc  ggcagaacat  accggtccgc  ctcatcgact  cctcgatcgt  420
cccggccagg  ttccggcgata  tcgcgagccg  gcgtggggac  gtcgtcggtc  tcgacggggt  480
gaagatcgtc  ggggaacatcg  gcgcgatagt  acgcacgtcg  ctccgcgctc  gagcgtcggg  540
gatcatcctg  gtggacagtg  acatcaccag  catcgcgagc  cggcgtctcc  aaagggccag  600
ccgaggttac  gtcttctccc  ttcccgtcgt  tctctccggt  cgcgaggagg  ccacgccttc  660
cattcgggac  agcggtatgc  agctgatgac  gctcaaggcg  gatggcgaca  tttccgtgaa  720
ggaaactcgg  gacaatccgg  atcggctggc  cttgctgttc  ggcagcgaaa  aggggtgggc  780
ttccgacctg  ttccgaggagg  cgtcttccgc  ctccggttcc  atccccatga  tgagccagac  840
cgagtctctc  aacgtttccg  tttccctcgg  aatcgcgctg  cacgagagga  tcgacaggaa  900
tctcgcggcc  aaccgataag  cgcctctggt  cctcggaacg  tcggttcctc  gacctcgatt  960
cgtcagtgat  gatcacctca  caggcgagcg  atcaccactg  acatatcgag  gtcaacggtc  1020
gtggtccggg  cgggcactcc  tcgaaggcgc  ggcgacgccc  cttgaacgac  tcgatgactc  1080
tagagtaacg  ggctactccg  tttaacggag  cccgttctca  cgctttaggg  ttgaccccg  1140
agcctgcatg  gggcattccg  ccgtgaaccc  ggtggaatgc  ccccggaacc  cgggctttcc  1200
agcaaagatc  acctggcgcc  gatgagtaag  gcgtacagaa  ccactccaca  ggaggaccgt  1260
cgagatgaaa  tctaacaatg  cgctcatcgt  catcctcggc  accgtcacc  tggatgctgt  1320
aggcataggc  ttggttatgc  cggtagtccc  gggcctcttg  cgggatatcg  tccattccga  1380
cagcatcgcc  agtcactatg  gcgtgctgct  agcgctatat  gcgttgatgc  aatttctatg  1440
cgcacccggt  ctccggagcac  tgtccgaccg  ctttggccgc  cgcccagtc  tgctcgcttc  1500
gctacttggg  gccactatcg  actacgcgat  catggcgacc  acaccgctcc  tgtggattct  1560
ctacgccgga  cgcacgtggt  ccggcatcac  cggcgccaca  ggtgcgggtg  ctggcgccca  1620
tatcgccgac  atcaccgatg  gggaagatcg  ggctcgccac  ttccgggtca  tgagcgcttg  1680
tttcggcggt  ggtatggtgg  caggccccgt  ggccggggga  ctggtggggc  ccattctcct  1740
gcatgcacca  ttcttgcgg  cggcggtgct  caacggcctc  aacctactac  tgggctgctt  1800
cctaagtcag  gagtcgcata  agggagagcg  tctccgatg  cccttgagag  ccttcaaccc  1860
agtcagctcc  ttccgggtgg  cgcggggcat  gactatcgtc  gccgcaacta  tgactgtctt  1920
ctttatcatg  caactcgtag  gacaggtgcc  ggcagcgctc  tgggtcattt  tcggcgagga  1980
ccgctttcgc  tggagcgcg  cgatgatcgg  cctgtcgctt  gcgggtattc  gaattcttga  2040
cgccctcgct  caagccttcg  tcaactggtc  cgccaccaaa  cgtttcggcg  agaagcaggc  2100
cattatcgcc  ggcattggcg  ccgacgcgct  gggctacgtc  ttgctggcgt  tcgcgacgcy  2160
aggctggatg  gccttcccca  ttatgattct  tctcgcttcc  ggcggcatcg  ggatccccgc  2220
gttgacggcc  atgctgtcca  ggcaggtaga  tgacgaccat  cagggaacgc  ttcaaggatc  2280

```


gctcgcggct	cttaccagcc	taacttcgat	cattggaccg	ctgacgtca	cggcgattta	2340
tgccgcctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2400
tgtctgcctc	cccgcgttgc	gtcgcgggtg	atggagccgg	gccacctcga	cctgaatgga	2460
agccggcggc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2520
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2580
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcatg	2640
atcgtgctcc	tgtcgttgag	gactagaatt	gatctcctcg	accgccaatt	gggcatctga	2700
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgatg	2760
atcacacccc	accggggggg	gggattgcag	tcaccgatct	ggtgggtgcg	cccaggaaga	2820
tcacgtttac	ataggagctt	gcaatgagct	actccgtggg	acaggtggcc	ggcttcgccg	2880
gagtgcgggt	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgtg	ccgagcgagc	2940
gcagccacgc	gggcccaccg	cgctacagcg	acgccgacct	cgaccggctg	cagcagatcc	3000
tgttctaccg	ggagctgggc	ttcccgcctc	acgaggtcgc	cgccctgctc	gacgacccgg	3060
ccgcggagcc	gcgcgcgcac	ctgcgcggcc	agcacgagct	gctgtccgcc	cggatcgga	3120
aactgcagaa	gatggcgggc	gccgtggagg	aggcagtgga	ggcacgcagc	atgggaatca	3180
acctcacccc	ggaggagaag	ttcgaggtct	tcggcgactt	cgaccccgac	cagtacgagg	3240
aggaggtccg	ggaacgctgg	gggaacaccg	acgcctaccg	ccagtccaag	gagaagaccg	3300
cctcgtaacg	caaggaggac	tggcagcgca	tcagggacga	ggccgacgag	ctcacccggc	3360
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgagggggcg	atggacggcg	3420
ccgaggacca	ccggcagggc	atcgcccgcg	accactacga	ctgcgggtac	gagatgcaca	3480
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccgcca	3540
agccgggctt	cgccgcctac	atgcgcgacg	cgatcctcgc	caacgcctgc	cggcacaccc	3600
cctgagcggt	ggtcgtggcc	cgggtctccc	gcccggtctc	acccacgggc	tactcccggg	3660
gccacgacca	ccgcgcgtcc	gtacgcgcac	acctcggtgc	ccacgtccgc	cgccctccgt	3720
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcaacttt	cggggaaatg	3780
tgcgcggaac	ccctatttgt	ttatttttct	aaatacattc	aaatatgtat	ccgctcatga	3840
gacaataaac	cttgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3900
atttcctgtg	cgcccttatt	cccttttttg	cggcattttg	ccttcctgtt	tttgctcacc	3960
cagaaacgct	ggtgaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4020
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagtgt	tcgccccgaa	gaacgttttc	4080
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccgt	attgacggcg	4140
ggcaagagca	actcggtcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4200
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgtgccca	4260
taaccatgag	tgataaacact	gcggccaact	tacttctgac	aacgatcgga	ggaccgaagg	4320
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4380
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4440
caacaacggt	gcgcaaacta	ttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4500
taatagactg	gatggaggcg	gataaagtgt	caggaccact	tctgcgctcg	gcccttcceg	4560
ctggctgggt	tattgctgat	aaatctggag	ccggtgagcg	tgggtctcgc	ggatcatttg	4620
cagcactggg	gccagatggt	aagccctccc	gtactcgtat	tatctacacg	acggggagtc	4680
aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	aggtgcctca	ctgattaagc	4740
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4800
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4860
aacgtgagtt	ttcgtttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4920
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcaaac	aaaaaaacca	ccgtaccag	4980
cgggtgggtt	tttgccggat	caagagctac	caactctttt	tccgaaggta	actggcttca	5040
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5100
agaactctgt	agcaccgcct	acatacctcg	ctctgctaata	cctgttacca	gtggctgctg	5160
ccagtggcga	taagtctgtg	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5220
cgcagcggtc	gggctgaacg	gggggttcgt	gcacacagcc	cagcttggag	cgaacgacct	5280
acacggaact	gagataccta	cagcgtgagc	tatgagaaag	cgccacgctt	cccgaaggga	5340
gaaaggcgga	caggtatccg	gtaagcgga	gggtcggaac	aggagagcgc	acgagggagc	5400
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5460
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5520
cggccttttt	acggttcctg	gccttttgct	ggccttttgc	tcacatgttc	tttcctgcgt	5580
tatccccctg	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	5640
gcagccgaac	gaccgagcgc	agcgagtcat	tgagcgagga	agcgggaagag	cgcccaatac	5700
gcaaaccgcc	tctccccgcg	cgttggccga	ttcataaatg	cagctggcac	gactagagtc	5760


```

ccgctgaggc ggcgtagcag gtcagccgcc ccagcgggtg tcaccaaccg ggggtggaacg 5820
gcgcgggtat cgggtgtgtc cgtggcgctc attccaacct ccgtgtgttt gtgcagggtt 5880
cgcgtgttgc agtcctcgc accggcacc cgcagcagg gctcacgggt gccggtgggt 5940
cgactagttc agtgatggtg atggtgatgt cctcgagatc taagcttggg tccgcggccg 6000
ctacgtagaa ttcccatggt atatctcctt cttaaagtta aacaaaatta tttctagacg 6060
ccgtccacgc tgcctcctca cgtgacgtga ggtgcaagcc cggacgttcc gcgtgccacg 6120
ccgtgagccg ccgagtgccg tcggctcctt cagcccgggc ggccgtggga gcccgctcg 6180
atatgtacac ccgagaagct cccagcgtcc tcctggggcc cgatactcga ccaccacgca 6240
cgcacaccgc actaacgatt cggccggcgc tcgattcggc cggcgtcga ttcggccggc 6300
gctcgattcg gccggcgctc gattcggccg gcgctcgatt cggccgagca gaagagtga 6360
caaccaccga ccacgcttcc gctctgcgc cgtaccga cctacctccc gcagctcgaa 6420
gcagctcccg ggagtaccgc cgtactcacc cgctgtgct caccatccac cgacgcaaag 6480
cccaaccgga gcacacctc tgcaccaagg tgcgaccgt ggctttccgc tcgcagggtt 6540
ccagaagaaa tcgaacgatc cagcgcggca aggttcaaaa agcaggggtt ggtggggagg 6600
agggttttggg ggggtgtcgcc gggatacctg atatggcttt gttttgcgta gtcgaataat 6660
tttccatata gcctcggcgc gtcggactcg aatagttgat gtggcgggc acagttgcc 6720
catgaaatcc gcaacggggg gcgtgctgag cgatcggcaa tggcgggatg cgggtgtgct 6780
tccgcaccgg ccgttcgcga cgaacaacct ccaacgaggt cagtaccgga tgagccgcga 6840
cgacgcattg gcaatgcggt acgtcgagca ttcaccgcac gcgttgctcg gatctatcgt 6900
catcgattgc gatcacgttg acgccgcgat gcgcgcattc gagcaaccat cccgacctcc 6960
ggcgccgaac tgggtcgcac aatcgccgtc cggccgcgca cacatcggtt ggtggctcgg 7020
ccccaaaccac gtgtgccgca ccgacagcgc ccgactgacg cactgcgct acgcccaccg 7080
catcgaaacc ggcctcaaga tcagcgtcgg cggcgatttc gcgtatggcg ggcaactgac 7140
caaaaacccg attcaccctg attgggagac gatctacggc ccggccacc cgtacacatt 7200
gcggcagctg gccaccatcc acacaccctg gcagatgccg cgtcggccc atcgggccgt 7260
gggcctgggg cgcaacgtca ccatgttcga cgccaccgg cgatgggcat acccgagtg 7320
gtggcaaacac cgaaacggaa ccggccgcga ctgggacct ctcgtcctgc agcactgcca 7380
cgccgtcaac accgagttca cgacaccact gccgttcacc gaagtacgcg ccaccgcgca 7440
atccatctcc aaatggatct ggcgcaattt caccgaagaa cagtaccgag cccgacaagc 7500
gcatctcggt caaaaaggcg gcaaggcaac gacactcgcc aaacaagaag ccgtccgaaa 7560
caatgcaag aagtacgacg aacatacgat gcgagaggcg attatctgat gggcgaggcc 7620
aaaaatccgg tgcgccgaaa gatgacggca gcgacgacg ccgaaaaatt cggtgctcc 7680
actcgacaaa tccaacgctt gtttgctgag ccgcgtgacg attacctcg ccgtgcgaaa 7740
gctcgccgtg acaaagctgt cgagctcgcg aagcaggggt tgaagtaccg ggaaatcgcc 7800
gaagcgatgg aactctcgac cgggatcgtc ggccgattac tgcacgacgc ccgcaggcac 7860
ggcgagatgt cagcggagga tctgtcggcg taaccaagtc agcgggttgt cgggttccgg 7920
ccggcgctcg gcactcggac cggccggcgg atggtgttct gcctctggcg cagcgtcagc 7980
taccgcgaa ggcctgtcat cgaccggctt cgactgaagt atgagcaacg tcacagcctg 8040
tgattggatg atcgcgtcac gctcgaccgc tacctgttca gctgcgccc gctgggcatg 8100
agcaacggcc aactctcgtt caa 8123

```

<210> 113

<211> 8184

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic vector
pTip LCH2

<400> 113

```

gagctcgacc gcgcgggtcc cggacgggga agagcgggga gctttgccag agagcgacga 60
cttccccttg cgttggtgat tgccggtcag ggcagccatc cgccatcgtc gcgtagggtg 120
tcacacccca ggaatcgcgt cactgaacac agcagccggt aggacgacca tgactgagtt 180
ggacaccatc gcaaatccgt ccgatccgcg ggtgcagcgg atcatcgatg tcaccaagcc 240
gtcacgatcc aacataaaga caacgttgat cgaggacgtc gagcccctca tgcacagcat 300
cgcgccgggg gtggagttca tcgaggtcta cggcagcgac agcagtcctt ttccatctga 360

```

gttgctggat	ctgtgcgggc	ggcagaacat	accgggtccgc	ctcatcgact	cctcgatcgt	420
caaccagttg	ttcaaggggg	agcgggaaggc	caagacattc	ggcatcgccc	gcgtccctcg	480
cccggccagg	ttcggcgata	tccgcgagccg	gcgtggggac	gtcgtcgttc	tcgacggggg	540
gaagatcgtc	gggaacatcg	gcgcgatagt	acgcacgtcg	ctcgcgctcg	gagcgtcggg	600
gatcatcctg	gtggacagtg	acatcaccag	catcgcgagc	cggcgtctcc	aaagggccag	660
ccgaggttac	gtcttctccc	ttcccgtcgt	tctctccggg	cgcgaggagg	ccatcgccct	720
cattcggggac	agcgggtatgc	agctgatgac	gctcaaggcg	gatggcgaca	tttccgtgaa	780
ggaactcggg	gacaatccgg	atcggctggc	cttgctgttc	ggcagcgaaa	aggggtggggc	840
ttccgacctg	ttcgaggagg	cgtcttccgc	ctcgggttcc	atccccatga	tgagccagac	900
cgagtctctc	aacgtttccg	tttccctcgg	aatcgcgctg	cacgagagga	tcgacaggaa	960
tctcgcggcc	aaccgataag	cgctctgtgt	cctcggagcg	tcggttcctc	gacctcgatt	1020
cgtcagtgat	gatcacctca	cacggcgagcg	atcaccactg	acatatcgag	gtcaacgggtc	1080
gtggtccggg	cgggcactcc	tcgaaggcgc	ggcgcagccc	cttgaacgac	tcgatgactc	1140
tagagtaacg	ggctactccg	tttaacggac	cccgttctca	cgttttaggc	ttgaccccgg	1200
agcctgcatg	gggcattccg	ccgtgaaccc	gggtggaatgc	ccccggcacc	cgggctttcc	1260
agcaaagatc	acctggcgcc	gatgagtaag	gcgtacagaa	ccactccaca	ggaggaccgt	1320
cgagatgaaa	tctaacaatg	cgctcatcgt	catcctcggc	accgtcacc	tggtatgctgt	1380
aggcataggc	ttggttatgc	cggtagtgc	gggcctcttg	cgggatatcg	tccattccga	1440
cagcatcgcc	agtcactatg	gcgtgctgct	agcgtatat	gcgttgatgc	aattttctatg	1500
cgcacccggt	ctcggagcac	tgctccgacc	ctttggccgc	cgcacagtc	tgctcgcttc	1560
gctacttgga	gccactatcg	actacgcgat	catggcgacc	acaccgctcc	tgtggattct	1620
ctacgccgga	cgcacgtggg	ccggcatcac	cggcgccaca	ggtgcggttg	ctggcgcccta	1680
tatcgccgac	atcaccgatg	gggaagatcg	ggctcgccac	ttcgggctca	tgagcgcttg	1740
tttcggcggtg	ggtatggtgg	caggccccgt	ggcgggggga	ctgttgggcg	ccatctcctt	1800
gcattgcacca	ttccttgccg	cggcggtgct	caacggcctc	aacctactac	tggtgtgctt	1860
cctaattgca	gagtcgcata	agggagagcg	tcgtccgatg	cccttgagag	ccttcaacc	1920
agtcagctcc	ttccggtcga	cgcggggcat	gactatcgtc	gccgcactta	tgactgtctt	1980
ctttatcatg	caactcgtag	gacagggtgc	ggcagcgctc	tggttcattt	tcggcgaggga	2040
ccgctttcgc	tgagcgcgga	cgatgatcgg	cctgtcgctt	gcggtattcg	gaatcttgca	2100
cgcctcgcct	caagccttcg	tcactgggtcc	cgcacccaaa	cgtttcggcg	agaagcaggc	2160
cattatcgcc	ggcatggcgg	ccgacgcgct	gggtacgtc	ttgctggcgt	tcgcgacgcg	2220
agggtggatg	gccttcccca	ttatgattct	tctcgcttcc	ggcggcatcg	ggatgccgcg	2280
gttgcaaggc	atgctgtcca	ggcaggtaga	tgacgacat	cagggaacagc	ttcaaggatc	2340
gctcgcggct	cttaccagcc	taacttcgat	cattggaccg	ctgatcgtca	cggcgattta	2400
tgccgcctcg	gcgagcacat	ggaacgggtt	ggcatggatt	gtaggcgccg	ccctatacct	2460
tgtctgectc	cccgcggtgc	gtcgcgggtg	atggagccgg	gccacctcga	cctgaatgga	2520
agccggcggc	acctcgctaa	cggattcacc	actccaagaa	ttggagccaa	tcaattcttg	2580
cggagaactg	tgaatgcgca	aaccaaccct	tggcagaaca	tatccatcgc	gtccgccatc	2640
tccagcagcc	gcacgcggcg	catctcgggc	agcgttgggt	cctggccacg	ggtgcgcatg	2700
atcgtgctcc	tgctgttgag	gactagaatt	gatctcctcg	accgccaatt	gggcatctga	2760
gaatcatctg	cgtttctcgc	acgcaacgta	cttgcaacgt	tgcaactcct	agtgttgta	2820
atcacacccc	accggggggg	gggattgcag	tcaccgattt	ggtgggtgcg	cccaggaaga	2880
tcacgtttac	ataggagctt	gcaatgagct	actccgtggg	acagggtggc	ggcttcgccg	2940
gagtgcagg	gcgcacgctg	caccactacg	acgacatcgg	cctgctcgta	ccgagcgagc	3000
gcagccacgc	gggccaccgg	cgctacagcg	acgccgacct	cgaaccggctg	cagcagatcc	3060
tggtctaccg	ggagctgggc	ttcccgtcgc	acgaggtcgc	cgcctgctc	gacgacccgg	3120
ccgcggaacc	gcgcgcgcac	ctgcgcgcgc	agcacgagct	gctgtccgcc	cggatcggga	3180
aactgcagaa	gatggcggcg	gccgtggagc	aggcgatgga	ggcacgcagc	atgggaatca	3240
acctcacc	ggaggagaag	ttcgagggtc	tcggcgactt	cgaacccgac	cagtagcagg	3300
aggaggtccg	ggaacgctgg	gggaacaccg	acgcctaccg	ccagtccaag	gagaagaccg	3360
cctcgtacac	caaggaggac	tggcagcgca	tccaggacga	ggccgacgag	ctcaccggcg	3420
gcttcgtcgc	cctgatggac	gcgggtgagc	ccgccgactc	cgaagggggcg	atggacgcgc	3480
ccgaggacca	ccggcagggc	atgcgccgca	accactacga	ctgcgggtac	gagatgcaca	3540
cctgcctggg	cgagatgtac	gtgtccgacg	aacgtttcac	gcgaaacatc	gacgccgcca	3600
agccgggcct	cgcgcgcctac	atgcgcgacg	cgatcctcgc	caacgccgctc	cggcacaccc	3660
cctgagcggg	ggtcgtggcg	cgggtctccc	gcccggtctc	acccacgggc	tcactcccgg	3720
gccacgacca	ccgcgctccc	gtacgcgcac	acctcgggtg	ccacgtccgc	cgcctccgct	3780
acgtcgaaac	ggaagatccc	cgggtaccga	gctcgtcagg	tggcactttt	cggggaaatg	3840

tgcgcggaac	ccctatttgt	ttatttttct	aaatacatte	aaatatgtat	ccgctcatga	3900
gacaataaac	ctgataaatg	cttcaataat	attgaaaaag	gaagagtatg	agtattcaac	3960
atttccgtgt	cgcccttatt	cccttttttg	cggcattttg	ccttccgtgt	tttgctcacc	4020
cagaaacgct	ggtgaaagta	aaagatgctg	aagatcagtt	gggtgcacga	gtgggttaca	4080
tcgaactgga	tctcaacagc	ggtaagatcc	ttgagagttt	tcgccccgaa	gaacgttttc	4140
caatgatgag	cactttttaa	gttctgctat	gtggcgcggt	attatcccgt	attgacgcgc	4200
ggcaagagca	actcggtcgc	cgcatacact	attctcagaa	tgacttggtt	gagtactcac	4260
cagtcacaga	aaagcatctt	acggatggca	tgacagtaag	agaattatgc	agtgctgcca	4320
taaccatgag	tgataacact	gcggccaact	tacttctgac	aacgatcgga	ggaccgaagg	4380
agctaaccgc	ttttttgcac	aacatggggg	atcatgtaac	tcgccttgat	cgttgggaac	4440
cggagctgaa	tgaagccata	ccaaacgacg	agcgtgacac	cacgatgcct	gtagcaatgg	4500
caacaacgtt	gcgcaaacta	ttaactggcg	aactacttac	tctagcttcc	cggcaacaat	4560
taatagactg	gatggaggcg	gataaagttg	caggaccact	tctgcgctcg	gcccttccgg	4620
ctggctgggt	tattgctgat	aaatctggag	ccggtgagcg	tgggtctcgc	ggatatcattg	4680
cagcactggg	gccagatggg	aagccctccc	gtatcgtagt	tatctacacg	acggggagtc	4740
aggcaactat	ggatgaacga	aatagacaga	tcgctgagat	aggtgcctca	ctgattaagc	4800
attggtaact	gtcagaccaa	gtttactcat	atatacttta	gattgattta	aaacttcatt	4860
tttaatttaa	aaggatctag	gtgaagatcc	tttttgataa	tctcatgacc	aaaatccctt	4920
aacgtgagtt	ttcgttccac	tgagcgtcag	accccgtaga	aaagatcaaa	ggatcttctt	4980
gagatccttt	ttttctgcgc	gtaatctgct	gcttgcacaa	aaaaaaacca	ccgctaccag	5040
cggtaggtttg	ttttgccggg	caagagctac	caactctttt	tccgaaggta	actgggttca	5100
gcagagcgca	gataccaaat	actgttcttc	tagtgtagcc	gtagttaggc	caccacttca	5160
agaactctgt	agcaccgcct	acatacctcg	ctctgctaata	cctgttacca	gtgggtgctg	5220
ccagtggcga	taagtctgtg	cttaccgggt	tggactcaag	acgatagtta	ccggataagg	5280
cgcagcggtc	gggctgaacg	gggggttcgt	gcacacagcc	cagcttgagg	cgaacgacct	5340
acaccgaact	gagataccta	cagcgtgagc	tatgagaaag	cgccacgctt	cccgaaggga	5400
gaaaggcgga	caggatatccg	gtaagcggca	gggtcggaac	aggagagcgc	acgaggggagc	5460
ttccaggggg	aaacgcctgg	tatctttata	gtcctgtcgg	gtttcgccac	ctctgacttg	5520
agcgtcgatt	tttgtgatgc	tcgtcagggg	ggcggagcct	atggaaaaac	gccagcaacg	5580
cggccttttt	acgggttctg	gcctttttgt	ggccttttgc	tcacatgttc	tttctctgct	5640
tatcccctga	ttctgtggat	aaccgtatta	ccgcctttga	gtgagctgat	accgctcgcc	5700
gcagccgaac	gaccgagcgc	agcagtgacg	tgagcgagga	agcgggaagag	cgcaccaatac	5760
gcaaaccgcc	tctccccgcg	cgttggccga	ttcattaatg	cagctggcac	gactagagtc	5820
ccgctgaggc	ggcgtagcag	gtcagccgcc	ccagcgggtg	tcaccaaccg	gggtggaacg	5880
gcgcgggtat	cgggtgtgtc	cgtggcgctc	attccaacct	ccgtgtgttt	gtgcagggtt	5940
cgcgtgttgc	agtccctcgc	accggcaccc	gcagcgaggg	gctcacgggt	gccggtgggt	6000
cgactagttc	agtgatgggtg	atgggtgatg	cctcgagatc	taagcttggg	tccgcggccg	6060
ctacgtagaa	ttcccatatg	tatatctcct	tcttaaaagt	aaacaaaatt	atttctagac	6120
ccgtccacg	ctgcctcctc	acgtgacgtg	agggtcaagc	ccggacgttc	cgcgtgccac	6180
gccgtgagcc	gccgcgtgcc	gtcggctccc	tcagcccggg	cggccgtggg	agcccgcctc	6240
gatatgtaca	cccgagaagc	tcacagcgtc	ctcctgggcc	gcgatactcg	accaccacgc	6300
acgcacaccg	cactaacgat	tcggccggcg	ctcgattcgg	ccggcgctcg	attcggccgg	6360
cgcctcgattc	ggccggcgct	cgattcggcc	ggcgtcgcgt	tcggccgagc	agaagagtga	6420
acaacaccgc	accacgcttc	cgcctcgcgc	gccgtacccg	acctacctcc	cgcagctcga	6480
agcagctccc	gggagtagccg	ccgtactcac	ccgcctgtgc	tcaccatcca	ccgacgcaaa	6540
gccaaccccg	agcacacctc	ttgcaccaag	gtgccgaccg	tggctttccg	ctcgcagggt	6600
tccagaagaa	atcgaacgat	ccagcgcggc	aaggttcaaa	aagcaggggt	tgggtggggag	6660
gagggttttg	gggggtgtcgc	cgggatacct	gatatggctt	tgttttgctg	agtcgaataa	6720
ttttccatat	agcctcggcg	cgtcggactc	gaatagttag	tgtggggcggg	cacagttgcc	6780
ccatgaaatc	cgcaacgggg	ggcgtgctga	gcgatcggca	atgggcggat	gcgggtgtgc	6840
ttccgcacgc	ggcgttcgcg	acgaacaacc	tccaacgagg	tcagtaccgg	atgagccgcg	6900
acgacgcatt	ggcaatgcgg	tacgtcgagc	attcacgcga	cgcgttgctc	ggatctatcg	6960
tcacgcactg	cgatcacgtt	gacgccgcga	tgccgcgcat	cgagcaacca	tcggaccatc	7020
cggcgccgaa	ctgggtcgca	caatcgccgt	ccggccgcgc	acacatcgga	tgggtggctcg	7080
gccccaaacca	cgtgtgccgc	accgacagcg	cccgaactgac	gccactgcgc	tacgcccacc	7140
gcacgaaac	cggcctcaag	atcagcgtcg	gcggcgattt	cgcgtatggc	gggcaactga	7200
ccaaaaaccc	gattcacccc	gattgggaga	cgatctacgg	cccggccacc	ccgtacacat	7260
tgcggcgagct	ggccaccatc	cacacacccc	ggcagatgcc	gcgtcgcccc	gatcggggcg	7320

```

tgggcctggg cgcgaacgtc accatgttcg acgccaccgc gcgatgggca taccgcgagt 7380
gggtggcaaca ccgaaacgga accggccgcg actgggacca tctcgtcctg cagcactgcc 7440
acgccgtcaa caccgagttc acgacaccac tggcgttcac cgaagtacgc gccaccgcgc 7500
aatccatctc caaatggatc tggcgcaatt tcaccgaaga acagtaccga gcccgcacaag 7560
cgcatctcgg tcaaaaaggc ggcaaggcaa cgacactcgc caaacaagaa gccgtccgaa 7620
acaatgcaag aaagtacgac gaacatacga tgcgagaggc gattatctga tgggcggagc 7680
caaaaatccg gtgcgccgaa agatgacggc agcagcagca gccgaaaaat tcggtgcctc 7740
cactcgcaaca atccaacgct tgtttgctga gccgcgtgac gattacctcg gccgtgcgaa 7800
agctcgccgt gacaaaagctg tcgagctgcg gaagcagggg ttgaagtacc gggaaatcgc 7860
cgaagcgatg gaactctcga ccgggatcgt cggccgatta ctgcacgacg cccgcaggca 7920
cggcgagatt tcagcggagg atctgtcggc gtaaccaagt cagcgggttg tcgggttccg 7980
gccggcgctc ggcaactcga ccggccggcg gatggtgttc tgctctggc gcagcgtcag 8040
ctaccgccga aggcctgtca tcgaccggct tcgactgaag tatgagcaac gtcacagcct 8100
gtgattggat gatccgtca cgctcgaccg ctacctgttc agctgccgcc cgctgggcat 8160
gagcaacggc caactctcgt tcaa 8184

```

<210> 114

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
6xHis tag

<400> 114

His His His His His His

1

5

<210> 115

<211> 422

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (151)..(222)

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 115

gtgtacatat cgaggcgggc tcccacggcc gcccgggctg agggagccga cggcacgcgg 60

cggctcacgg cgtggcacgc ggaacgtccg ggcttgacc tcacgtcacg tgaggaggca 120

gcgtggacgg cgtcagagaa gggagcggcc atg ggc cac cat cac cat cac cat 174

Met Gly His His His His His His

1

5

atg gga att cta cgt agc ggc cgc gga tcc aag ctt aga tct cga gga 222

Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Arg Gly

10

15

20

tgaactagtc gacccaccgg caccctgag cccctcgctg cgggtgccgg tgcgagggac 282
 tgcaacacgc gaaacctgca caaacacacg gaggttgga tgagcgccac ggacacaccc 342
 gataccggcg ccgttcacc ccggttggtg accaccgctg gggcggtga cctgctacgc 402
 cgctcagcg ggactctagt 422

<210> 116
 <211> 24
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 coded protein sequence

<400> 116
 Met Gly His His His His His Met Gly Ile Leu Arg Ser Gly Arg
 1 5 10 15
 Gly Ser Lys Leu Arg Ser Arg Gly
 20

<210> 117
 <211> 416
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (151)..(216)

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide sequence

<400> 117
 gtgtacatat cgaggcgggc tcccacggcc gcccgggctg agggagccga cggcacgcgg 60
 cggtcacgg cgtggcacgc ggaacgtccg ggcttgacc tcacgtcacg tgaggaggca 120
 gcgtggacgg cgtcagagaa gggagcggcc atg gga att cta cgt agc ggc cgc 174
 Met Gly Ile Leu Arg Ser Gly Arg
 1 5
 gga tcc aag ctt aga tct cga gga cat cac cat cac cat cac 216
 Gly Ser Lys Leu Arg Ser Arg Gly His His His His His His
 10 15 20

tgaactagtc gacccaccgg caccctgag cccctcgctg cgggtgccgg tgcgagggac 276
 tgcaacacgc gaaacctgca caaacacacg gaggttgga tgagcgccac ggacacaccc 336
 gataccggcg ccgttcacc ccggttggtg accaccgctg gggcggtga cctgctacgc 396

cgcctcagcg ggactctagt

416

<210> 118

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
coded protein sequence

<400> 118

Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Arg Gly
1 5 10 15

His His His His His
20

<210> 119

<211> 425

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (151)..(225)

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 119

gtgtacatat cgaggcgggc tcccacggcc gcccgggctg agggagccga cggcacgcgg 60

cggctcacgg cgtggcacgc ggaacgtccg ggcttgacc tcacgtcacg tgaggaggca 120

gcgtggacgg cgtcagagaa gggagcgc atg ggc cat cac cat cac cat cac 174
Met Gly His His His His His His
1 5

gcc atg gga att cta cgt agc ggc cgc gga tcc aag cct aga tct cga 222
Ala Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Pro Arg Ser Arg
10 15 20

gga tgaactagtc gaccacccg caccctgag cccctcgtg cgggtgccgg 275
Gly
25

tgcgagggac tgcaacacgc gaaacctgca caaacacacg gaggttgga tgagcgccac 335

ggacacaccc gataccggcg ccgttcacc ccggttggtg accaccgctg gggcggctga 395

cctgctacgc cgcctcagcg ggactctagt 425

<210> 120
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 coded protein sequence

<400> 120
 Met Gly His His His His His His Ala Met Gly Ile Leu Arg Ser Gly
 1 5 10 15
 Arg Gly Ser Lys Pro Arg Ser Arg Gly
 20 25

<210> 121
 <211> 416
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (151)..(216)

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide sequence

<400> 121
 gtgtacatat cgaggcgggc tcccacggcc gcccgggctg agggagccga cggcacgcgg 60
 cggctcacgg cgtggcacgc ggaacgtccg ggcttgacc tcacgtcacg tgaggaggca 120
 gcgtggacgg cgtcagagaa gggagcgc atg gga att cta cgt agc ggc cgc 174
 Met Gly Ile Leu Arg Ser Gly Arg
 1 5
 gga tcc aag ctt aga tct cga gga cat cac cat cac cat cac 216
 Gly Ser Lys Leu Arg Ser Arg Gly His His His His His His
 10 15 20
 tgaactagtc gaccacacgg caccctgag ccctcgctg cgggtgccgg tgcgaggga 276
 tgcaacacgc gaaacctgca caaacacacg gaggttgaa tgagcgccac ggacacaccc 336
 gataccggcg ccgttcacc ccggttggtg accaccgctg gggcggctga cctgctacgc 396
 cgcctcagcg ggactctagt 416

<210> 122
 <211> 22
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
coded protein sequence

<400> 122

Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Arg Gly
1 5 10 15His His His His His His
20

<210> 123

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<221> CDS

<222> (3)..(68)

<220>

<223> Description of Artificial Sequence: Synthetic
nucleotide sequence

<400> 123

cc atg gga att cta cgt agc ggc cgc gga tcc aag ctt aga tct ctc 47
Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Leu
1 5 10 15gag cat cac cat cac cat cac tgaactagtc gac 81
Glu His His His His His His
20

<210> 124

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
coded protein sequence

<400> 124

Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Leu Glu
1 5 10 15His His His His His His
20

<210> 125
 <211> 82
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (4)..(69)

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide sequence

<400> 125
 cat atg gga att cta cgt agc ggc cgc gga tcc aag ctt aga tct ctc 48
 Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Leu
 1 5 10 15
 gag cat cac cat cac cat cac tgaactagtc gac 82
 Glu His His His His His His
 20

<210> 126
 <211> 22
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 coded protein sequence

<400> 126
 Met Gly Ile Leu Arg Ser Gly Arg Gly Ser Lys Leu Arg Ser Leu Glu
 1 5 10 15
 His His His His His His
 20

<210> 127
 <211> 124
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 nucleotide sequence

<400> 127
 cgccccgggct gagggagccg acggcacgcg gcggctcacg gcgtggcacg cggaacgtcc 60
 gggcttgac ctcacgtcac gtgaggaggc agcgtggacg gcgtcagaga agggagcggc 120
 catg 124

<210> 128
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 128
gtcagagaag ggagcggcca tg

22

<210> 129
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 129
gtctagaaat aatdddgttt aactttaaga aggagatata ccatg

45

<210> 130
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 130
gtctagaaat aatdddgttt aactttaaga aggagatata cc

42

<210> 131
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 131
gtctagaaat aatdddgttt aactttaaga aggagatata cat

43